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WESTERN AMERICANA

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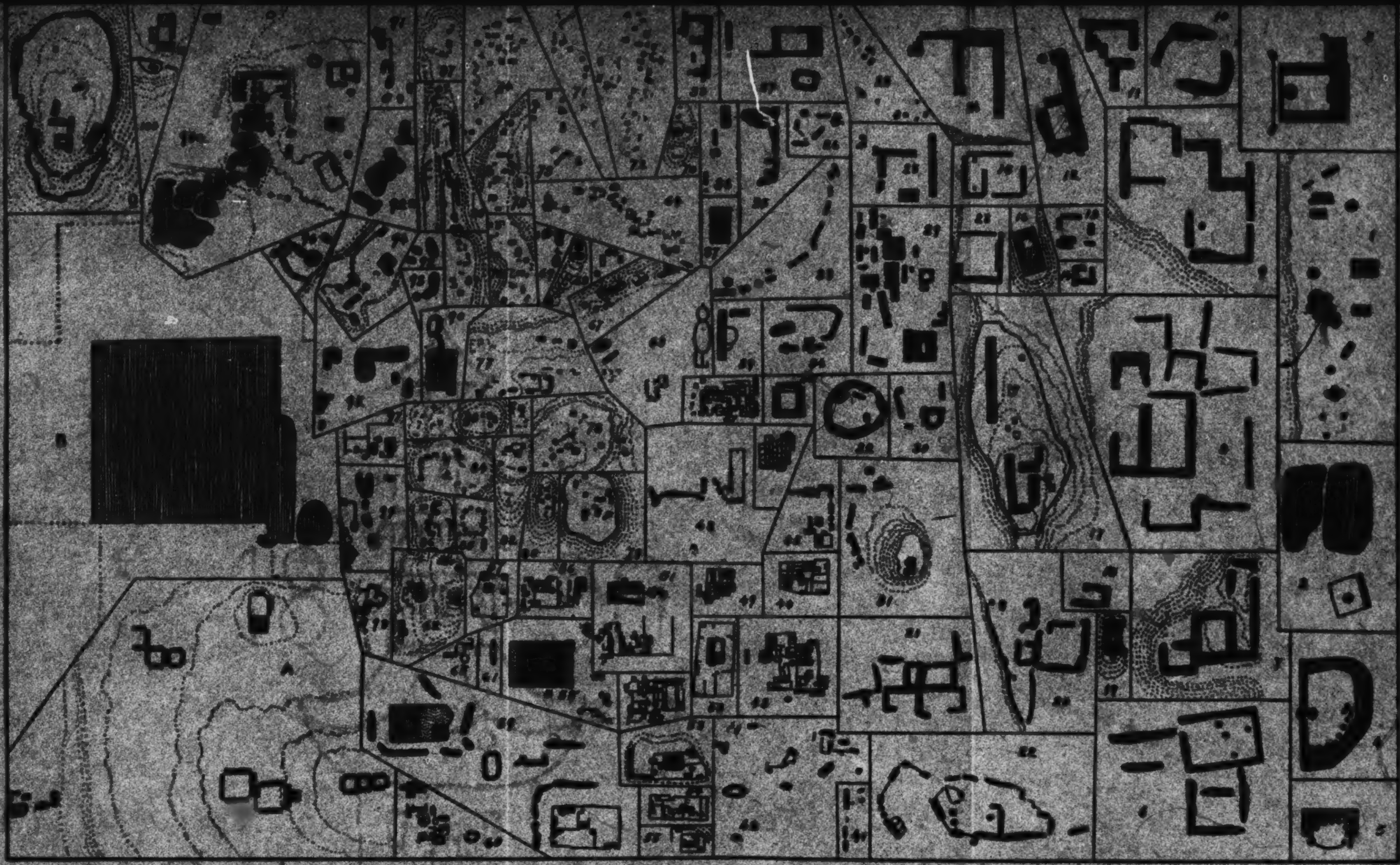

1, 2. Ruins in Southwestern Colorado.
3. Ruin on the Animas River in Northwestern New Mexico.
4. Pueblo Bonito, Cañon de Chaco, N. M.
5. Pueblo del Arroyo, Cañon de Chaco.
6. Po-se-ú, near Ojo Caliente of Joseph, N. M.
7. Ho-ma-yo, near Ojo Caliente of Joseph.
8. Se-pa-ue, near Rito Colorado, N. M.
9. Abe-chiu, N. M.
10. Yuge-uing-ge, at Chamita, N. M.
11. Potrero de las Vacas, north of Cochiti, N. M.
12. Pueblo Caja del Rio, northeast of Cochiti, N. M.
13. Ruin Kuapa, Tze-shu-ma, north of Cochiti, N. M.
14. Pueblo in the Cañon de la Cuesta Colorada, northwest of Cochiti, N. M.
15. Pueblo Viejo, north of Cochiti, N. M.
16. Pueblo in Potrero de la Cañada Quemada, west of Cochiti, N. M.
17. Tshi-quit-é, or Pecos, N. M.
18. Pueblo at San Antonio, Pecos Valley, N. M.
19. Pueblo on the Mesa at San Antonio del Pueblo, N. M.
20. T'a-ge-ung-ge, or Galisteo, N. M.
21. Pueblo on the Arroyo Hondo, near Santa Fé, N. M.
22. Yam-p'ham-ba, or San Cristobal, N. M.
23. Kat-isht-ya, or San Felipe (built between 1683 and 1693), N. M.
24. Kua-ua, or Torreon, opposite Bernalillo, N. M.
25. Puaray, opposite Bernalillo.
26. Pueblo at El Barro, north of Socorro, N. M.
27. Pueblo of La Parida, near Socorro, N. M.
28. Small-house village at the Parida.
29. Tabira, or Gran Quivira, N. M.
30. Pueblo near Cubero, Western New Mexico.
31. Pueblo at the Mesita Redonda, near McCarthy's, N. M.
32. Heshota-uthla, near Zuñi, N. M.
33. Small-house village in the Cañada Bonita, on the Arizona line.
34. Ha-ui-cu, near the Zuñi Hot Springs, N. M.
35. Pueblo at Ojos Bonitos, Zuñi, N. M.
36, 37. Pueblos at Taylor, Arizona.
38. Pueblo at Show-low, Arizona.
39, 40. Pueblos near Fort Apache, Arizona.
41, 42. Ruins on the Gila between San Carlos and Fort Thomas, Arizona.
43. Ruin at Globe, Arizona.
44, 45. Ruins at Los Trigos, Arizona.
46–49. Ruins on Upper Rio Salado, Arizona.
50–52. Ruins on Tonto Creek, Arizona.
53–55. Ruins near Old Fort Reno, Arizona.
56, 57. Ruins near Fort McDowell, on the Lower Rio Verde, Arizona.
58. Mound near Tempe on the Salado, Arizona.
59. Casa Grande, Arizona.
60. Ruins at Brockmann's, Rio Mimbres, N. M.
61, 62. Ruins south of Brockmann's.
63–65. Ruins on the Upper Rio Mimbres, N. M.
66, 67. Ruins on Upper Rio Gila, N. M.
68, 69. Ruins near Silver City, N. M.
70–77. Ruins on the Upper Sonora River, between its source and Huépaca, Sonora, Mexico.
78. Ruin at Oposura, Sonora, Mex.
79. Ruins on the Mesa de San Antonio, near Granados on the Upper Yaqui River, Sonora, Mex.
80. Ruins near Nacori, Sonora.
81, 82. Ruins near Bacadéhuachi, Sonora.
83–86. Ruins in the vicinity of Huachinera, Sonora.
87. Ruins near Estancia, Sonora.
88. Ruin at Los Metates, Sierra de Teras, Sonora.
89. Ruins near Babispe, Sonora.
90. Ruins at Carretas, Chihuahua, Mexico.
91. Ruins on the Arroyo de los Alisos, Chihuahua.
92, 93. Ruins near Janos, Chihuahua.
93a, 93b. Ruins near Casas Grandes, Chihuahua. 93b are the main ruins, to which the name Casas Grandes is specially applied.
94. Ruins at Boquilla on the Casas Grandes River, Chihuahua.
95, 96. Ruins on the Rio de Palanganas, Chihuahua.
97. Ruins on the Arroyo de la Cuesta, Chihuahua.
98, 99. Ruins on the Rio de Piedras Verdes, Chihuahua.
100. Ruins of El Pueblito, Cerro de Moctezuma, Chihuahua.
A. Mitla, in the State of Oaxaca, Southern Mexico.
B. The Great Mound (Pyramid) of Cholula, Central Mexico.
C. Ruins of the fortified hill of Jiú, near Mitla, Oaxaca, Southern Mexico.

PLATE I. — GROUND PLANS OF VARIOUS RUINS.

Scale, 800 feet (244 meters) to the inch.

Papers of the Archæological Institute of America.

AMERICAN SERIES.

IV.

FINAL REPORT
OF
INVESTIGATIONS AMONG THE INDIANS OF THE SOUTHWESTERN UNITED STATES, CARRIED ON MAINLY IN THE YEARS FROM 1880 TO 1885.

PART II.

BY

A. F. BANDELIER.

ARCHÆOLOGICAL
INSTITUTE
OF
AMERICA.
1879.

CAMBRIDGE:
PRINTED BY JOHN WILSON AND SON.
University Press.
1892.

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CONTENTS.

PAGE

INTRODUCTION 3

I. THE COUNTRY OF THE TAOS, PICURIES, AND TEHUAS, IN NORTHERN NEW MEXICO 29

II. THE COUNTRY OF THE TANOS 87

III. THE UPPER VALLEY OF THE RIO PECOS, THE RIO GALLINAS, AND THE EASTERN LIMITS OF THE PUEBLO COUNTRY 125

IV. THE VALLEY OF THE RIO GRANDE BETWEEN THE RITO DE LOS FRIJOLES AND THE MOUTH OF THE JEMEZ RIVER 139

V. THE COUNTRY OF THE JEMEZ 200

VI. THE TIGUAS AND THE PIROS 218

VII. WESTERN NEW MEXICO 293

VIII. NORTHERN ARIZONA 366

IX. THE UPPER COURSE OF THE LITTLE COLORADO RIVER, AND THE APACHE RESERVATION IN EASTERN ARIZONA 385

X. THE GILA, SALADO, AND LOWER VERDE RIVERS OF ARIZONA 404

PAGE

XI. TUCSON, THE UPPER RIO SAN PEDRO, THE SIERRA HUACHUCA, AND THE SIERRA CANANÉA . . . 469

XII. THE VALLEY OF THE SONORA RIVER TO BABIÁCORA AND THE VALLEY OF OPOSURA 482

XIII. THE UPPER YAQUI RIVER, AND THE NORTHERN SIERRA MADRE OF SONORA 499

XIV. NORTHWESTERN CHIHUAHUA 531

XV. CONCLUSION 577

LIST OF ILLUSTRATIONS.

Plate		Page
I.	Ground Plans of Various Ruins	*Frontispiece*
II.	Houses built against the Cliffs, Rito de los Frijoles	143
III.	The Panther Statue and Stone Enclosure on the Potrero de las Vacas	152
IV.	The Panther Statute on the Potrero de los Idolos	161
V.	Cave Dwellings on the Upper Rio Salado . . .	425
VI.	Ground Plan of Casas Grandes, Chihuahua, Mexico	544
VII.	Main Portion of Ruins of Casas Grandes . . .	545

FINAL REPORT

ON

INVESTIGATIONS IN THE SOUTHWEST.

PART II.

1

INTRODUCTION.

THE search for antiquities is perhaps easier in the Southwest of North America than in any other section of the continent, at least within the limits of the United States. In consequence of the great aridity, the ruins of buildings are less exposed to rapid obliteration, and even where the walls have crumbled to mere rubbish heaps, these remain free from overgrowth for a long time, and are therefore of easy detection. Often they can be seen at a considerable distance. In New Mexico and Northern Arizona, a reddish patch in the extensive landscape spread out before the eye frequently indicates the site of a ruin, the débris taking a hue distinct from that of the soil. In Sonora, especially along the course of the Sonora, Oposura, and Upper Yaqui Rivers, a thorny vegetation has spread over the sites of former villages, and the explorer must scramble through disagreeable thickets of Mezquite (*Prosopis juliflora*), Palo Verde and Palo Blanco (*Parkinsonia*), Ocotilla (*Fouquiera*), and Cactus; among which the formidable Choya (*Cylindropuntia*) is not only annoying, but dangerous. It is beneath the scanty shade of such thickets that we find most of the vestiges of past generations of Indians. On the Lower Gila, in the delta between that river and the Salado, Mezquite bushes less dense than those of more southern latitudes have overgrown the remains of considerable buildings. Usually, however, on the sandy plains of Southwestern Arizona, and along the banks of the Casas Grandes River and its tributaries in Northwestern Chihuahua, the clusters of mounds to which the houses are reduced are visible from afar. Their color and shape distinguish them at a glance from natural eminences.

Fragments of pottery, flakes of obsidian or flint, and objects made of basalt, lava, or any other hard mineral, usually accompany the ruins. Still this is not always the case. The numerous ruins around Zuñi show but very little pottery on their surface; many of them none at all. This is due, as Mr. Cushing has discovered, to the custom of the present Zuñi Indians of collecting all the ancient broken pottery and grinding it to powder in order to mix it with the clay out of which they manufacture their present earthenware, to give it greater hardness. In many parts of Sonora I noticed a scarceness of potsherds also, but could not ascertain whether it was due to the same cause as at Zuñi. On the other hand, the appearance of old broken earthenware on the surface of the ground is not unmistakable evidence of the former existence of a settlement. It may be due to accidental breakage, or may indicate a spot where a certain vessel was left with sacrificial offerings, or it may be a vestige of burial. This is still more the case with obsidian, flint, basalt, or bone implements. The roaming native used the arrow-head in common with the house-dweller, manufactured it with equal care and perfection, and employed it to a more recent date than the latter. It is otherwise with the grinding slabs, or, as they are usually called in the Southwest, Metates. Where these are met with, the former existence of at least a temporary abode of village Indians is certain. Stone axes and hatchets, mauls and hammers, are easily lost on a journey or campaign; but since the roving aborigines in the Southwest did not make them, ~~it~~ is reasonable to look upon them at least as signs of the passage of sedentary Indians. Bone implements were common to both classes of ancient Americans in the Southwest.

The existence of artificial caves or of ancient dwellings inside natural grottos or recesses, and of villages constructed upon rocky projections or platforms, the so called "cave dwellings" and "Cliff-houses," is dependent upon the geological features of the country. Erosion has acted powerfully in many parts of the Southwest, — aqueous erosion as well as atmospheric. But the nature of the rock has determined the extent of this action. The three kinds of ruins named, therefore, cannot be looked for everywhere. Artificial caves require exceptionally soft material in order to be burrowed out with primitive utensils. Light, friable volcanic tufa, or ashes, is the rock wherein the artificial cave is mostly found; and as this formation is not very common, it follows that the type of dwelling is limited in distribution. Large natural cavities or shelters cannot usually be looked for in granite, syenite, or hard porphyry; and long ledges over precipitous slopes or overlooking vertical walls are most abundant in sandstone. The explorer has therefore to pay close attention to the geological and lithological features of the country.

Intercourse with the inhabitants of the country, and if possible a certain degree of intimacy with them, are among the first requisites for successful exploration. However humble the condition may be of him who has been reared in the vicinity of objects to which our researches are directed, and however limited his intellectual faculties or the field which his mind can embrace, he still has the advantage of local experience. If he is truthful, and in most cases he can be made such by affable treatment, he will always be able to tell us something valuable. The Indian is less accessible than the Spanish-speaking inhabitant. Ruins are a part of his folk-lore, not seldom a part of his creed. This he is loth to divulge. He goes to the ruins for many objects of his time-honored worship; many of the artificial objects are still useful to him at this day. Consequently he looks upon the investigator with a suspicious eye, eludes his direct questions, even shrinks from his company. It is certain that the past of a great number of ruins is still clearly engrafted upon the Indian's mind as folk-lore and ritual. In the First Part of this Report I have indicated how these are preserved, and what *rôle* they play in the life of the Indian. In order to be made useful for archæological research he must be approached very cautiously. The study of folk-lore in the Southwest has only been initiated; important results will undoubtedly spring from future work in that line.

As a general rule, the Indian is more prone to give reliable information about his neighbor than about himself. Therefore, by consulting such members of a tribe as have travelled, we obtain data concerning the archæology of other districts which are sometimes precious. The statements of a Tehua Indian from San Ildefonso first led me to identify Tabirá with the so called Gran Quivira; while from the Piros of Senecú, whose ancestors occupied that pueblo, I had not been able to learn anything, — not because they could not, but because they would not tell. It belonged to their own circle of knowledge, into which they were unwilling to admit me at the time. This reticence on the part of the Indian may finally disappear; still, it is quite time that their myths and traditions were collected, lest with the breaking up of customs on which that reticence is founded the memory of the past be lost.

Generally speaking, the nomadic Indian, Apache or Navajo, can impart more information on the geographical distribution of ruins than the Pueblo. The former roams, the latter stays in one spot. The former has paid no attention to settlements, except as places for plunder or trade; he may remember the manner in which a particular village was destroyed, or how its abandonment was brought about. With the Pueblo, on the other hand, the ruins are a part of his own history. Nevertheless the nomad has seen a greater stretch of territory, and he may, if he chooses, inform us of ruins of which perhaps only a dim trace is left in some mythological tale of the village Indian.

Objects of antiquity are preserved by the Pueblo Indians in many villages. Sometimes they may be obtained, but whenever they have any peculiar value for purposes of worship the native will not part with them. The Indians of Santa Clara have thoroughly rifled the caves of the Pu-yé and Shu-finné formerly made and occupied by their ancestors, and valuable "relics" have wandered into the hands of a few collectors. The leading Shamans in each village carefully preserve curious implements, very ancient sacrificial bowls, and other objects, either as particularly strong charms or as vases for sacrificial purposes. I saw in the hands of the Tzihuisendo (chief Tzihui) of San Juan[1] a beautiful green slab, resembling malachite or dark jade. It was said to have been brought from the south, probably from Chihuahua, and was used, together with an elliptical plate of basalt, to call to order the meeting of medicine-men on certain very solemn occasions.[2] The stone knives at Zuñi are antique. Medicine bowls are used in preference when they are very ancient and well preserved. In general, with the Indian, what is old or what has come from distant lands very soon becomes sacred. What is great in age, and large in size or space, appeals with equal force to his superstitious feelings.

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[1] See Part I. pp. 305 and 309.

[2] The greenstone is called cua-co; the basalt, cu-cung.

Antiquities are also occasionally found in the houses of Spanish descendants, and much information by no means to be disdained can be derived from the Mexicans. Shepherds have been of great service to me, and I have nearly always found them reliable. They travel with their flocks over great distances, and are accustomed to scan the ground thoroughly, and for a knowledge of ruins located far away from inhabited districts their information is precious. But while their geographical knowledge is usually accurate, the same cannot be said of their descriptions of architectural details. In matters of proportion and size the superlative mostly prevails; but these exaggerations are not always intentional. A ruin appears usually more extensive than it is, and the means of comparison which the average Spanish New Mexican possessed until within a few years were very scant. He compared the long, many-storied buildings of Tabirá with the hamlet where was his own little adobe house with two or three apartments, and declared the Gran Quivira to be a "city," simply because he had himself never seen a city. His artistic ideas being on the level of those of the Pueblos, he praised a quaintly decorated ancient pot or urn as a marvel of beauty. His tales about the history of certain ruins must be taken with greater allowances than an Indian tradition, for Indian folk-lore rests on the basis of definite recollections, though shrouded by a haze of mythological combinations, whereas the story of the Mexican peasant or herder lacks that basis, or contains only a greatly disfigured account of it, gathered from hearsay. It becomes the task of the investigator to sift critically all such sources of information, without disdaining or neglecting any of them.

It is self-evident that practical acquaintance with the Spanish language is essential in the Southwest. Only when we understand people, and can make ourselves understood to the full extent of our thoughts, can we expect to derive profit from intercourse with them, and to obtain their confidence; we must also be forbearing towards their manners and customs, and drop prejudices which, although traditional, are unjust, and have sprung as much from lack of direct intercourse as from erroneous statements and appreciations of history. We must forbear, all the while reflecting that that forbearance is mutual, and that there is much in our habits at which the inhabitant of the Southwest might legitimately sneer, were he not too considerate to do so.

The careful study of documents is indispensable for a successful exploration of the antiquities of the country. Numerous notices of ruined villages are scattered through the voluminous archives of Spanish rule in the Southwest. I will refer here only to the descriptions of the Casa Grande by Father Kuehne (Kino) and Father Sedelmair,[1] of the Casas Grandes by Rivera,[2] and of the ruins in Northwestern New Mexico by Father Escalante.[3] Such descriptions, dating back sometimes two centuries or more, enable us to restore much in these edifices to which their present condition gives no clue. Furthermore, many a ruin that has been treated as "prehistoric" becomes modern in the light of documentary information. We are enabled to draw the line between what is historically established, and what is earlier; the analogies in culture, as well as the differences, become more apparent.

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[1] The reports of Father Kuehne are found in the *Documentos para la Historia de México*, 3d series, vol. iv. pp. 804, 838, and 4th series, vol. i. p. 282; also in an Appendix to the *Luz de Tierra Incógnita*, by Mange. See my *Contributions to the History of the Southwestern Portion of the United States*, p. 93. That of Father Sedelmair is found in the 3d series of the same collection, under the title of *Relacion que hizo el Padre Jacobo Sedelmair, de la Compañia de Jesús, Misionero en Tubutama*, vol. iv. p. 847*.

[2] *Diario y Derrotero*, etc., 1736, p. 48.

[3] *Diario y Derrotero*, etc., in *Documentos para la Historia de México*, 2d series, vol. i. p. 377 *et seq.*

Aridity, not sterility, is the general characteristic of Nature in the Southwest; and Mr. Cushing is justified in his designation of ancient culture there as "aridian."[1] The majority of ruins in New Mexico, Arizona, Chihuahua, and parts of Sonora, are found in sandy valleys, on plateaux insufficiently protected by trees, or on levels which, though fertile when watered, present at the outset a forbidding appearance. The northern limits of the region of house-builders remains yet to be definitely established. We only know that Southwestern Colorado and Southeastern Utah harbor many well preserved ruins; the eastern limits seem to be the meridian of the Pecos River; the western, the Great Colorado; and, farther south, the dismal shores of the Gulf of California. The country of village Indians is therefore characterized by scanty precipitation and irrigation, and is almost exclusively mountainous. Central Colorado is beautifully watered, and well wooded, yet I have been unable to ascertain that any vestiges of sedentary Indians have ever been discovered about the Sierra Blanca, or east of it. I shall not attempt an explanation of this. Careful examination of the physical features alone is insufficient. Causes of which we have as yet no record may have been at work, inducing the Indian to establish permanent homes under natural circumstances apparently unfavorable, and to shun neighboring sections far more inviting in resources. Lovely valleys bordered by high forests, and abounding in springs and brooks, are certainly of great promise to civilized man, who can subdue the vegetation of the temperate zone and render it profitable; but the stone axe was an imperfect tool for "clearing," and the abundance of game drew thither the nomad as well as the villager. In the struggle for possession the latter was always at a disadvantage. This is a problem which must be approached by careful investigation, and Indian tradition may yet prove to be of great, perhaps decisive importance.

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[1] *Preliminary Notes on the Origin, Working Hypothesis, and Primary Researches of the Hemenway Southwestern Archæological Expedition.* "Congrès International des Américanistes," Berlin, 1888, pp. 186, 190.

Within the area over which the vestiges of sedentary culture are scattered in the Southwest, and as far into Mexico as I have been able to penetrate, it is useless to look for ruins at an altitude exceeding eight thousand feet. Consequently, very few, if any, are found in the high forests, although the northern Sierra Madre presents an exception. The cave villages on the Arroyo del Nombre de Dios, in the mountains west of Casas Grandes, lie in a region covered with beautiful pine forests. Those on the Arroyo de los Pilares and near the Rio de Piedras Verdes I have not been able to visit, but the appearance presented by the landscape, as I surveyed it from the crest of the Puerto de San Diego, indicated to me that the wooded region extends over the whole interior of the range. It is therefore not the forest growth which has prevented the establishment of permanent Indian homes above a certain limit; it is rather the climate and the lack of space for cultivation, together with the steepness of slopes and the mountain torrents raging in narrow valleys with destructive power. Altitude may have been the main obstacle to settlement in some cases, for the beautiful grassy basins, with abundant water and fair quality of soil, that extend west of Santa Fé between the ranges of Abiquiu, Pelado, and Sierra de Toledo on the east, and the Sierra de la Jara and the mountains of Jemez on the west, under the name of "Los Valles," are destitute of ruins. There it is the long winter, perhaps also the constant hostility of roaming tribes contending for a region so abundant in game, that have kept the village Indian out. Vestiges of antiquity are met with on the highest crests and summits, but they are evidences of worship only. Prayer-plumes are found on the Sierra de San Matéo (Mount Taylor), as well as at the lagune on Lake Peak, near Santa Fé.[1] The Indian of to-day still makes pilgrimages to such prominent points to offer sacrifices to some of "Those above."

The lower limit of the ruins seems mostly dependent upon natural features. In the eastern parts of New Mexico the steppes have, of course, prevented the establishment of permanent abodes. Nevertheless, there are said to be traces of the existence of a succession of ruins along the Canadian River, far across the great plains. Should these indications prove true, and these vestiges of settlements continue as far east as the outskirts of the Mississippi valley, it would be a fact of considerable importance. I have seen Pueblo pottery, which, I am satisfied, was dug up on the banks of the Canadian River, some distance east of Ocaté. Buffalo hunters have assured me, that even beyond this they had seen distinct traces of ruins along the same stream, and had picked up potsherds from the surface. For some time, I have desired to make this the object of personal investigation. What I have learned will be found later, in Chapter III.

On the side of Arizona the ruins descend to within a thousand feet of the sea level, or possibly lower; but the aridity is so excessive, that it has prevented the establishment of settlements on the coast. The same must be said of the "playas" of Sonora. In the Southeast I am slightly acquainted with archæological features in the vicinity of El Paso; there are caves in the neighboring mountains from which sandals of yucca strips have been extracted; about other ruins I have positive information only as far as the hacienda of San José, where fetiches have been exhumed. On the Texan side the remains, if any, are few. The altitude of the banks of the Rio Grande in that vicinity is not over 3,800 feet, and if this should prove the limit of settlement in ancient times, it is due to the barrenness of the country beyond. Of the interior of Texas I have no knowledge, except that, in the first half of the sixteenth century and since, only bands of roving Indians have occupied the State.

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[1] The elevation of the Sierra de San Matéo is given at 11,200 feet; that of Lake Peak at 12,405. Later measurements of the former make it 11,391 feet. The lagune on Lake Peak is of course lower than the summit.

It must not be supposed that the area indicated as containing remains of the sedentary aborigines is uniformly covered by them. There are many districts utterly devoid of ruins, such as the plains of San Agustin in Southwestern New Mexico, the crest and heart of all the numerous mountain chains, the "Valles," portions of the plateau of the Natanes in Eastern Arizona, and many other sections. The banks of the Rio Grande, from the San Luis valley to the end of the gorge of the Embudo, appear also not to have been settled in ancient times.

The causes that produced the foundation of villages, as well as those that brought about their abandonment, are so manifold, that only a few of them can be indicated here. The Indian needs, in order to stay for any length of time in a given locality, water, wood, a limited area of cultivable soil, and reasonable safety. Water need not be always in close proximity to his village. If that village is perched on a high mesa, a spring at the foot of the height will be sufficient, provided the declivity is not too steep. In places where the tribe had, for the sake of security, to select an inexpugnable rock as its residence, natural cavities played the part of reservoirs, and the water supply furnished by rain was artificially increased every winter by accumulating snow in the tanks. At this day we have an instance of the kind at Acoma. A distance of half a mile or a mile from the banks of a river was, and is, not looked upon as a great inconvenience by the women, whose duty it is to furnish the household with drinking water by carrying it on their heads in jars or urns. Leather bags were also used for carrying water, in quantities larger than those which the "tinaja," as the water-jar is called in Spanish, could contain. The various ruins scattered along the sand-flow, or "medano," issuing from the basin of the salt deposits of the Manzano, have as yet not revealed any springs in their vicinity, although at Tabirá (Gran Quivira) especially the search for water has been carried on repeatedly. Many are the hypotheses resorted to for an explanation of this strange feature. It has been overlooked, that every one of these ruins shows the traces of water reservoirs artificially constructed, and large enough to supply the population of each village all the year round; so that these villages of the Piros, though located in a comparatively open country, employed the same means as the people of Acoma on their cliff. To explain the former existence of villages at places where there is to-day no visible token of water supply, we need not, therefore, resort to the hypothesis of a decrease in rainfall during the past centuries.

It cannot be denied that the number of springs in the Southwest is greater than has been supposed. Such watering places, artfully closed by Indians, are now occasionally discovered in the immediate vicinity of ruins, showing that apparent aridity is sometimes misleading. I will mention a recent occurrence that throws additional light on

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the question of local, and more or less permanent, changes in the conditions of water supply. The violent earthquake that visited Sonora, Chihuahua, Southern Arizona, and New Mexico in May, 1887, not only caused a sudden increase in the volume of many springs, but forced new ones to the surface in places where hitherto permanent water was unknown. But while earthquakes can augment springs or create new ones, so can they cause others to disappear; and instances of the kind are known to have occurred in the Southwest in connection with seismic disturbances.

The proximity of forests could not always be secured by the Indian when selecting a site for a home. But fuel was needed for his hearth and his estufa, both in winter and in summer. He also required timber for his roofs and ceilings, for the ladders on which he reached those roofs, and on which he descended into the interior of the houses. In Northern and Central New Mexico and Arizona, forests are frequent; also in Sonora and in Northwestern Chihuahua, as far as the Sierra Madre reaches; but in Southern New Mexico and Arizona, and in many parts of Northern Chihuahua, the sedentary Indian had to go long distances for the beams of his roof and of his ladders. Yet it should be remembered that the work of obtaining and carrying building materials was not, like that of gathering fire-wood, a constantly recurring task. It occurred perhaps once in the lifetime of an individual, perhaps only once in the lapse of several generations. Communal labor had to perform it, since there were no beasts of burden, and the individual alone was powerless. Like the opening of an irrigation ditch, or "acequia," it was a permanent "improvement," which was to last as long as the village. Distance, therefore, was not an insuperable difficulty.

Cultivable soil need not lie in the immediate neighborhood of a village, or be contiguous to it. A pueblo might be, as is Acoma to-day, ten or even fifteen miles from its fields. The custom of emigrating *en masse* to these fields in summer, leaving at home only a small portion of the people to guard it, explains why we find ruins in places where the nearest tillable patch is quite distant. Neither was it essential that the soil should be irrigated. Of course it was preferable, and wherever groups of sedentary people could monopolize the neighborhood of a permanent stream, it was done, and irrigation ditches opened. Still the number of ruins situated in places where no irrigation was possible, and where it is also manifest that there were cultivated spots, is considerable. Indian corn, of the small variety, bushy, with long ears but a light grain, will grow without artificial watering wherever the rainy season is tolerably regular, as upon mountain slopes. The presence of ancient villages on the high mesas west of the Rio Grande, in the latitude of Santa Fé and as far north as opposite to San Juan, in places difficult of access, and almost without communication with the river banks, although the latter are only ten to twelve miles distant, need not therefore surprise us. The people who dwelt in the caves of the Pu-yé and on the mesas around it, the inhabitants of Tzi-re-ge, of the Potrero de las Vacas, etc., had their patches of corn, of beans and squashes, on the same plateau as their dwellings. They were of course exposed to the danger of periodically recurring droughts, and Indian traditions point to the fact that such periods of aridity have sometimes caused the shifting of tribes.

Similar conditions have enabled the Piros to establish their villages in the proximity of the salt marshes. At the Gran Quivira (Tabirá), considerable snow falls in ordinary winters, and during the rainy season precipitation, although of short duration, still occurs in reasonable quantities. The people of these villages had therefore no need of irrigation for their limited crops. In the valley of Taos, on the heights above the Ojo Caliente of Joseph, at the great ruin of Se-pä-uă, near the Rio Colorado, in the mountains of Central Arizona, and in the Sierra Madre of Sonora and Chihuahua, the native resorted to artificial means to store moisture in the soil, by surrounding the space which he intended to cultivate with an enclosure of stones. He also used mountain torrents for irrigation, by planting his garden beds right in their path, and keeping them clear of drift. An analogous device was resorted to by the inhabitants of the Gila valley, by opening narrow channels from the mountain slopes to the valleys in order to lead the "arroyos" to the fields established on either or both sides of such ditches. In mentioning these methods I am not indulging my imagination, for the Pimas are positive in their declarations on the subject; so are the Opatas; and the Maricopas to-day use these artificial prolongations of the beds of torrents for irrigating their crops. In the regions of Southern Arizona irrigation is essential, as the rainfall is almost exclusively limited to the mountain slopes and crests.

Last, but not least, the village Indian was influenced in his selection of the site for his home by the desire to insure safety from enemies. Permanence of abode does not preclude aggressiveness, but, even where a tribe is warlike, a strong position, in which non-combatants may be left perfectly secure, is one of the first conditions of successful offensive warfare. The pueblo of Tenochtitlan was rendered almost impregnable through its lacustrine surroundings, and Cuzco was protected by formidable mountains. In the case of the Southwestern village Indians, there is no evidence of any tribe or stock ever obtaining a preponderating influence or power akin to that of the ancient Mexicans or the Incas.

On the contrary, they seem to have always been on the defensive towards one another and the nomads. Safety is as much insured by watchfulness against surprise, as by successful resistance. To discover the approach of danger beforehand was even better than to repel an assault. The choice of an elevated site was therefore as much for seeing as for fighting "from above," by placing themselves upon a higher level than the assailant, which is the chief aim of Indian defensive tactics. It would lead me too far to enumerate all the instances of ruins found on commanding eminences. But there are also many cases in which an elevated situation for the village proper could not be secured, or where it was sacrificed to other advantages in the shape of water, timber, or arable soil, or to religious considerations. In many of these cases, lookouts, frequently watch-towers, round or rectangular, were erected in proximity to the pueblos. It is well known that such structures are frequent in the northern sections of the Southwest, but I have also found them in Arizona; and the best example of one, provided it is of Indian origin, stands on the summit of the Cerro de Montezuma, near Casas Grandes. The watch-tower, therefore, is neither a regular feature in the architecture of the Southwest, nor is it peculiar to a certain type of dwellings.

Along the banks of streams, the currents not unfrequently drove the villager to the higher dunes. On the Rio Grande near Bernalillo, the historically noted pueblo of Puaray is a good example, in which safety from inundations was combined with a tolerably commanding position. From the reports of Coronado's expedition we learn that there were several inhabited villages within sight of each other, all belonging to the same stock of people.[1] Puaray and the pueblo north of it commanded a wide range of view, and in this manner acted as lookouts for those situated on the opposite bank, where the town of Bernalillo stands to-day. Cochiti, Santa Clara, and San Juan, are situated like Puaray. But the centre of a plain, or of a broad valley, is quite as favorable for defensive purposes as an eminence. From the tops of the high buildings a wide view is commanded, and the open ground is less favorable to stealthy approach. Examples of this kind are the villages in the Tempe valley of Arizona, those near Ascension in Northern Chihuahua, Taos, and modern Halona, or Zuñi.

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[1] See Part I. p. 129.

Retreat into narrow gorges, caves, and to cliffs or ledges, indicates compulsion in location. With the artificial caves it is different. The situation of the cave villages of the Pu-yé and Shu-finné west of Santa Clara is a commanding one, the view from there being remarkable for its extent; but what induced the Tehuas, to whom the excavations are due, to resort to the place, and to the kind of architecture, was the extreme friability of the rock. It was easier to burrow a home than to build it. When deterioration set in and endangered further residence, the people built a village on the top of the castle-like rocks in the bases of which they had hollowed out their grottos. The Rito de los Frijoles is a secluded gorge of difficult access, where the Queres could dwell in the numerous artificial caverns with little danger from enemies; but it was the fertility and irrigability of the little vale, together with the easily workable pumice-stone of its vertical northern cliffs, that induced them to make their home there, and not a military necessity, as seems to have been the case with most cliff or cave villages elsewhere.

I merely allude here to a feature in methods of defence which makes its appearance in the southern portions of the Southwest, especially in Sonora. This is the erection of places of refuge, fortified by primitive parapets, in the neighborhood of villages, or in connection with one or more groups of settlements. These "Cerros de Trincheras" are a purely military feature, which has no bearing upon the questions under consideration, namely, the causes that determined the native in the selection of his place of abode.

The element of religion cannot be overlooked. An oracle, a presage, a striking feature in landscape recalling to the Indian one of his mythological types or fetiches, may have exerted a decisive influence. Such instances will be clearly developed when the folk-lore of the Southwest becomes better known. Another element is the occurrence of a natural product prized by the Indian, for subsistence, for mechanical purposes, for decoration, or for worship. I have already mentioned the salt lagunes of the Manzano, which certainly induced the Piros and Tiguas to settle around that otherwise dismal spot. The same may be said of the salt basins south of Zuñi, where well preserved ruins testify to former habitation. The basin of Galisteo, south of Santa Fé, is far from prepossessing or favorable for agriculture,[1] but the neighborhood of the turquoise mines, as well as the proximity of the buffalo, have had great weight in inducing the Tanos to settle on that barren expanse. The Indians of San Felipe would be loth to abandon their location, not merely on account of its fertility and the facilities for irrigation, but also on account of the veins of ochre, used for red paint, in the volcanic mesa at the foot of which their village is built. The village of Cia enjoys to-day almost a monopoly of white apatite and flesh-colored feldspar, both of which are held in high esteem for trinkets and fetiches.[2]

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[1] See Part I. p. 156.

[2] The localities where these minerals are found, near Cia, are said to have been closed by witchcraft.

These are only a few instances, at the present time, which enable us to conjecture about the past.

From the foregoing examination, it follows that any exclusive explanation of the causes of settlement of land-tilling aborigines in the Southwest is impossible.

I have reached the conclusion from what little knowledge I have of Indian traditions, that the number of ruins by no means indicates a considerable contemporaneous population at any given time. Mr. Cushing, in his remarkable investigations of Zuñi folk-lore, has found that, in the course of the shiftings of that tribe, they settled successively in not less than one hundred and nineteen different places.[1] Previous to the coming of the Spaniards the Indians of Cochiti had successively occupied the Rito de los Frijoles, the Potrero de las Vacas, the Potrero del Capulin, or San Miguel, the vale of Cuapá, the river front on the north side of the Cañada de la Peralta, and the south bank of the same torrent.

The Indians of San Juan enumerate at least three shiftings immediately previous to the sixteenth century, and their traditions point to numerous ruins on both sides of the valley as having been formerly villages of the Tehuas.

A similar story is told by the people of Cia, of Jemez, and by the Tiguas. We have not as yet many details concerning the cause of abandonment in each instance; but it is certain that warfare had much to do with it. The persistent harassing practised by the nomads upon the settlers, local droughts, freshets (as at Santo Domingo at least four times), pestilence (on the Rio Mimbres), oracular utterances, lightning strokes, internal dissensions, the formation of new clans and consequent gradual emigration, earthquakes, — all these may have been agencies in the case of ruins of which nothing but their existence is known. We have few criteria from which to deduce with any degree of probability the cause of abandonment. If we find the pottery well preserved and without traces of intentional perforations or breaking, we may, from our knowledge of Indian customs among the Pueblos, conclude with reasonable probability that the people were compelled to hasty evacuation. If in addition, as at Heshota Uthia in the Upper Zuñi valley, fractured bones or skulls are found, it is probable that a surprise, raid, or assault had driven off the people. Where the pottery is broken, or perforated at the bottom, a slow and undisturbed evacuation may be supposed. If the ruin lies on the banks of a torrent, like Gi-pu-y, the old village of Santo Domingo, and that torrent has swept through parts of it, or carried away one side, it justifies the suspicion that the abandonment was compelled by a disastrous freshet. The evidence is rarely positive enough to exclude all doubt, and the greatest caution should be exercised. In the instance just quoted, of Gi-pu-y, tradition tells us that a sudden rise of the Arroyo de Galisteo caused the people to forsake their homes, and flee to the banks of the Rio Grande.

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[1] *Preliminary Notes*, p. 189. "Thus we find in the great migration ritual of the Zuñis . . . that even traditionally they found no fewer than something like one hundred and nineteen middles of the world ere the final actual middle of the world was discovered."

The abandonment of many pueblos has been attributed to earthquake shocks, or to volcanic eruptions. In Western New Mexico and Arizona there are said to be ancient houses into which lava has penetrated, so that it seems safe to assume that their occupation was prior to the latest eruptions. The destruction of the often mentioned Tabirá, as well as that of the large pueblos at Joseph's Ojo Caliente (Pose-uing-ge, Ho-ui-ri, and others), has frequently been attributed to seismic convulsions. I have not yet been able to elicit any reliable information from the Tehuas, whose ancestors built and occupied the villages near Ojo Caliente; but the presence of a number of skeletons, promiscuously scattered through the rooms and in various postures, is no incontrovertible proof of a violent earthquake shock having slain the people and destroyed the houses. The condition of the latter may be the result of decay posterior to evacuation, and the corpses may be those of individuals who fell victims to an acute pestilence. Within the past century, epidemics have almost depopulated pueblos in a very short time. At Jemez, in 1728, one hundred and eight persons died in less than one month. The epidemic of 1782 caused over five hundred victims in the pueblos of Santa Clara and San Juan and vicinity in two months' time. The abandonment of Pecos was greatly due to so called mountain fever. Although previous to the advent of Europeans neither small-pox nor the measles were known among the aborigines, still instances of "great dyings" are preserved in folk-lore; and in the case of a violent scourge, the superstitious dread inherent in Indian nature might impel a tribe to forsake its homes precipitately, and without giving sepulture to the dead or care to the living. The probability that earthquakes were the cause of the abandonment of the pueblos at Ojo Caliente is as strong as any other hypothesis. In regard to Tabirá, the existence of an extensive and apparently recent bed of lava south of the Mesa de los Jumanos, and the resemblance of the sand-flow of the Médano to the bed of an extinct river, whose course might have been intercepted by an upheaval, lend color to the hypothesis that an earthquake caused the destruction of that village and partial extermination of its inhabitants. In the First Part of my Report,[1] I have established that Tabirá was a settlement of the Piros, a well known mission in the seventeenth century, and that it had to be abandoned about 1670 on account of the Apaches; but I have been unable to find any trace of volcanic outbreaks or violent earthquake shocks in New Mexican archives. Still, while the fact that the Apaches compelled the evacuation of Tabirá seems beyond all doubt, the silence of documents in respect to seismic phenomena does not authorize us to deny their occurrence within historic times. In 1887 the shock was violent at El Paso, all along the Gila River, and in Albuquerque, while at Santa Fé nothing was felt. An earthquake may have been severe at the Salines in the seventeenth century, and the northern part of the Territory may not even have heard of it.

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[1] See Part I. p. 131.

Before entering upon a discussion of aboriginal architecture and its details, I desire to offer some observations on the manner of exploring ruins. The number of those examined by me is nearly four hundred; the territory over which they are dispersed has been indicated in the Introduction to the First Part of this Report.

It is just as necessary to trace out where remains do not exist, as to determine where they are. I have therefore taken especial pains to find out, through personal inspection and well tested information of others, in what districts or sections the village Indian has left no traces. This has led me to the establishment of approximate geographical limits, by no means absolutely reliable, but subject to correction by further investigators. In pursuing this line of investigation, I was brought to inquire why there are no ruins in certain sections of the Southwest.

In undertaking explorations in a particular district, I always strove to secure ground plans of the greatest possible number of ruins, so as to obtain, not only the most remarkable examples, but also smaller ones, which are liable to be overlooked. In addition to furnishing a more accurate idea of the number of settlements, this led me to the discovery of types different from those accepted as general through the Southwest, and finally to their original connection, and the possible evolution of one from the other. No excavations were undertaken by me, but this deficiency has been supplied, I believe, by the number of localities investigated, the many well preserved examples of architecture examined, and the consequent insight obtained into the changes wrought by decay upon the perfect form, which enabled me to detect architectural details in structures less well preserved.

With the exception of the late E. G. Squier, I believe that no investigator in Spanish America has paid sufficient attention to the size of ruined settlements. In the Southwest, it was easier to do this so long as the so called pueblo type was exclusively studied. Since General Simpson's valuable explorations in the Chaca Cañon and the Navajo country, we have had a series of complete surveys of particular ruins. The work becomes more intricate as soon as ruins are met with in which the buildings are irregularly scattered. Even where excavations have been made, they were mostly begun at the centre, instead of first attempting to establish the outline of the whole village, and afterwards making thorough investigation of details. Thus erroneous notions about the size of the ancient villages have arisen. I have striven to obtain as accurate an idea as possible of the size of each ruin, sacrificing in some cases minor details. Where the same types repeat themselves as often as in the Southwest, it has seemed superfluous to go into the same special investigations everywhere. The results of my surveys of the respective areas covered by various ruins in the Southwest are best presented graphically, and Plate I. contains, therefore, a selection of the largest examples of each variety, and also some of the smallest, examined by me. For the sake of comparison, some ruins in Central Mexico, Oaxaca, Peru, and the Mississippi valley, reduced to the same scale, are placed by the side of the others.

In regard to the artificial objects found in ruins, imperfect specimens, if collected in numbers, yield better results than choice ones, of which only a few can occasionally be obtained. On pottery it is mostly the decoration that affords interest, since shapes are usually similar. The value of that decoration consists in that it is, if not always intentionally symbolical, still derived from well ascertained symbols; and the curious fact is revealed that the ritual and symbolical designs in use to-day among the Pueblo Indians are the same as those found on pottery from Colorado, Utah, Arizona, Sonora, and as far as Casas Grandes. At the latter place, and in the Sierra Madre as far as I traversed it, two new symbols seem to make their appearance. In regard to other objects of art, local variations will be noted further on; also the proximity as well as the distance of the material used in the manufacture of implements or weapons.

I much regret my inability to make excavations, but in regard to burials I have endeavored to gather as much information as possible, and by the help of the researches of others, who have been more favorably situated, I may yet be able to present some not uninteresting data. Burial grounds are usually difficult to detect. The Indian is quite reticent on this subject, and unless we succeed in winning his confidence, the discovery of the place where the bones of past generations lie, or where their ashes are preserved, is accidental. The same may be said of sacrificial caves. The finding of plume-sticks is not always evidence of a shrine. At Zuñi every corn patch almost has its prayer-plumes, fastened to poles painted red, with bow and shield of the hero-god Mai-tza-la-ima attached to them. Individuals praying on the spur of the moment may deposit a prayer-plume on the spot. The shrines are hallowed places, and few are the uninitiated ones who enjoy the privilege of knowing where they are.

As archæology in the Southwest is yet in its infancy, it follows that the great field of research into the existence of man in quaternary times cannot be touched upon here.

I have nothing to change in the classification of aboriginal architecture suggested by me in the Fifth Annual Report of the Institute, nor have I to modify any of the general conclusions therein presented. I proceed, therefore, to report in greater detail upon the districts which I have visited and examined between the years 1880 and 1886, giving, as far as possible, the lie of the land in each case, in connection with its aboriginal remains, and such rays of light as documentary history and Indian tradition may shed upon them.

INVESTIGATIONS IN THE SOUTHWEST.

I.

THE COUNTRY OF THE TAOS, PICURIES, AND TEHUAS, IN NORTHERN NEW MEXICO.

BY the above title I wish to designate the section of New Mexico which is inhabited by the sedentary tribes thus named at the present day. It is indispensable to make this restriction, since we do not know whether these tribes, in their shiftings anterior to historic times, ever drifted beyond this region to the west, south, or east, or whether any of the ruins situated towards the northwest may yet prove to be those of their former abodes. The Tiguas of Isleta, who speak the same language as the Taos and Picuries and recognize them as kindred, have a tradition analogous to that of the Tehuas in regard to their origin. Mr. C. F. Lummis, who has given much attention to the language and folk-lore of Isleta, found that its people claim to have issued from the Lagune of Shi-pa-pu in Southern Colorado. The Tehuas also know Shipapu, but call it Ci-bo-be,[1] and place it almost directly north of their present range, likewise in Southern Colorado. Weird stories attach themselves to this lagune. One of my informants, a wizard of high standing, assured me that, whenever a white man approaches the lake, its waters begin to boil and overflow the shores, but at the approach of an Indian they remain placid and calm. Whenever an Indian camps on its shores over night, he hears strange sounds issuing from its depths, — the neighing of horses, mingled with the bellowing of cattle and the bleating of sheep. These are the flocks upon which the happy dead feed at the bottom of the waters. Shipapu or Cibobe is not only the birthplace of the Pueblo Indians, it is also their final resting place after death, — their paradise. These stories show the authenticy of the tradition concerning the issuing of the Pueblos from some cave or lake north of New Mexico. But they also bear the marks of corruption during historic times by the addition to the riches and resources originally attributed to that Indian paradise of goods and chattels imported by the white man. They also show how strong is the hold which primitive belief still has on the Indian mind, since he has added to his original picture of the place of bliss things known to him only for three centuries, rather than give up the primitive conception altogether in favor of modern ideas.

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[1] It is to Ci-bo-be that the Indian Pedro Naranjo, from the pueblo of San Felipe (Queres), manifestly referred, on the 19th of December, 1681, when interrogated by Don Antonio de Otermin on the causes and beginnings of the great Pueblo rebellion. *Interrogatorios de varios Indios de los Pueblos Alsados*, MS., fol. 135. He says of the notorious Pope, that, while he was concealing himself in one of the estufas of Taos, "le aparecieron . . . tres figuras de

I have made but two visits to Taos and one to Picuries.

Indios que nunca salian de la estufa, y le dieron a entender al dicho Pope que ivan por debajo de tierra hasta la laguna de Copiala." Further on (fol. 126), the same Indian says, "Porque siempre han deseado vivir como sacieron de la laguna de Colela." I believe both Copiala and Colela to be mistakes of the copyist, and that the original manuscript read Cibobe. The copy was made at the close of the last century, and forms part of the great collection of historical manuscripts made by order of the Spanish government at a time when the Lagune of Copiala was still famous in Mexico. Hence the error. The name of the lagune is also given by the Tehuas of San Juan as "O-jang-ge P'ho-quing-ge." Those of Santa Clara also call Cibobe "Shi-pa-puyna."

It is almost certain that the former tribe was what Castañeda called "Braba," being the most northerly of the Pueblos in Coronado's time. Castañeda writes of it as follows: "Twenty leagues farther on from Yuque-yunque, or Chamita, and in the direction of the north, going up the river, there was a large and powerful village which was called Braba, which our people named Valladolid. It was built on both sides of the stream, which was crossed by bridges constructed of very well hewn beams of pine timber. In that village were seen the largest and most remarkable estufas of the whole country."[1]

Taos, built on both sides of the swift and cool Rio de Taos is the only village in New Mexico, ancient or modern, so far discovered, the situation of which corresponds with Castañeda's description and location. He says, "Valladolid is the last one in ascending towards the northeast."[2]

Although the present buildings of Taos are not those of the Braba of the sixteenth century, they still preserve the appearance of the old village, and their position relative to the river and the valley is the same. Taos is therefore, together with Acoma and some of the Moqui villages, one of the best preserved examples of antiquity so far as architecture is concerned. The valley of Taos is one of the best irrigated sections in the Southwest. Several permanent watercourses flow from the high mountains that enclose it on the east towards the Rio Grande. This river is about twenty-five miles to the west of the modern town of Fernandez de Taos, which lies about three miles west of the pueblo. The aspect presented by the valley is very striking when first seen from the high plateau above the Arroyo Hondo. A plain with few undulations stretches far to the north and west, arid and bare in both of these directions. Beyond it low, dark mountains skirt the northern and northwestern horizon, and above them the Cerro de San Antonio rises in the distance, like a flat dome. In the west, beyond the deep cleft in the black volcanic rock at the bottom of which flows the Rio Grande, loom up the wooded heights above Ojo Caliente. In the southwest, the range of the Valles terminates in the pyramid of the extinct volcano of Abiquiu and in the truncated cone of the Pedernal; the south is one mass of dark pine-clad mountains; and nearly one half of the eastern horizon is covered by the imposing chain of Taos, the summits of which tower, in gigantic crags and steep cupolas, to over thirteen thousand feet above the level of the sea. Rising abruptly six thousand feet from the valley, in winter, spring, and fall, when the chain of Taos is still snow-clad, its aspect is particularly grand and solemn.

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[1] *Cibola*, p. 139. He adds: "Le capitaine Hernando d'Alvarado avait déja visité ce village en allant à la découverte de Ci cuyé. La contrée est fort élevée et très froide; la rivière qui l'arrose est fort profonde et rapide et l'on n'y trouve pas de gué." This proves that Francisco de Barrionuevo, who visited Braba in 1541, crossed the Rio Grande at Chamita and followed its course along the left (east) bank. The Rio Grande is indeed hardly fordable above Embudo, and is a very rapid and quite deep stream in some places. The Spanish officers also mistook the Taos River for the Upper Rio Grande, — a very natural mistake for one unacquainted with the country.

[2] *Ibid.*, p. 182. The *Relacion* of Alvarado is contained in the *Documentos de Indias*, tom. iii. p. 511.

The region is also interesting from an historical and archæological point of view. The wide landscape divides naturally into areas containing ancient settlements. The western and northern sections of the valley appear at a glance to be suitable for village Indians, and therefore the ruins of the Taos people are to be sought along the base of its high mountains. One of them, to which I was told they gave the name of Mojua-lu-na, or Mojual-ua, is said to exist in the mountains, and in the plain there are said to be considerable ruins near the Ranchos de Taos,[1] and also extensive vestiges of garden plots. Not having been able to examine any of these places, I can only report from hearsay. The north is said to be without traces of ancient architecture. The dark ridges in the northwest are those of Tierra Amarilla, and beyond them lies the archæologically important San Juan country, about which all historical data are as yet wanting. The cluster of hills above Ojo Caliente is the edge of an extensive region dotted with ruins of pueblos, which the Tehua Indians claim as having been their ancestral home. That region embraces all the southwestern landscape and includes the base of Abiquiu Peak, and of its southern neighbor, the Pelado, where lie the artificial caves. The dark mountains of Picuries divide the ruins in the Taos country from those to which the traditions of the Picuries are attached. From the plateau above the Arroyo Hondo, we therefore include at one glance a large portion of the territory to which this chapter will be devoted.

Many historical recollections are associated with this extensive territory. The pueblo of Taos, indistinctly visible at the foot of the gigantic sierra, recalls Coronado, Oñate, and the uprisings of 1680 and 1696. The valley around the pueblo reminds us of harrowing scenes enacted in August, 1680, and in 1766, when the Comanches raided the Spanish settlement. Ojo Caliente and Abiquiu were the scenes of similar outrages by the Yutes in 1747. Diego de Vargas passed repeatedly through the country around us. The cañon east of Taos was the spot where the faithful Governor of Pecos, Juan Yé, lost his life at the hands of the treacherous Taos Indians. Over the Picuries Mountains the priest of Taos fled from them in the night of the 4th of June, 1696, with a few soldiers.[1]

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[1] The Ranchos de Taos lie four miles from Fernandez de Taos, the modern town.

Over the some rugged chain we now have to cross, in order to cast a glance at the Picuries valley and its vestiges of antiquity.

There is a trail leading from Taos to Picuries, but I preferred the wagon road as more commodious, and as furnishing a better view of the eastern high chain. This road surmounts the crests of the Sierra de Picuries by going directly south from the Ranchos de Taos for some distance. It follows at first a pleasant valley and a lively rivulet, and then penetrates into forests of pine on the northern slopes of the Picuries chain. These wooded solitudes afforded no room for the abode of man in ancient times. The modern traveller delights in their refreshing shade, and notices with interest the animal life that fills the thickets. The jet-black and snow-white magpie flutters about; blue jays appear, and variegated woodpeckers. It is so different from the arid mesas and barren mountains that we forget the painful steepness of the road. Its general direction is now to the southwest. Once on the southern slope of the Picuries range, we strike directly for the west.

Although forests still skirt the narrow grassy vale in the middle of which the road winds, the landscape assumes an entirely different character. In place of the imposing mass of the Sierra de Taos, the east is bounded by the bald Jicarrita and the rugged peaks and crags of the Sierra de las Truchas. Both rise higher than the Taos range,[2] but they are farther from us and their denuded slopes ascend more gradually. The summit of the Truchas is divided into sharp-pointed peaks, recalling the "Hörner Stöcke" or "Dents" of the Alps.

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[1] I will not mention the events of 1848, as they belong almost to contemporaneous history.

[2] The Truchas are slightly higher than Taos Peak. The latter is 13,145 feet, the former, 13,150, — both according to Wheeler. The altitude of the Jicarrita has not, to my knowledge, been determined; but the impression of those who have ascended to its top is that it exceeds the Truchas in height.

From these two mountains descend two streamlets, which run almost directly to the west, parallel with each other, for many miles, divided by wooded ridges of small width. One of these brooks is the Rio del Pueblo; the other the Rio del Peñasco, and they unite at a distance of a mile below the pueblo of Picuries to form the Rio del Embudo, and thus become tributary to the Rio Grande.[1] Thus the Picuries tribe had at its command two long and narrow valleys, well and constantly watered, with plenty of wood, since the heights on both sides of each valley bear thickets of pines, and the abrupt Sierra de Picuries, against which the pueblo leans on the south, is covered with stately forests. It was a choice spot, but open to incursions of the Indians of the plains in summer, and to the south, where access was easy from the Truchas and Trampas. Towards the north, mountains protected it against the Yutes and their neighbors from Taos, who were not always friendly; and in the west steep ridges with partly wooded crests rendered access from the Rio Grande difficult. We wonder at this day how it is possible for loaded wagons to overcome the long and steep inclines between the little town of Embudo and the heights above the Peñasco valley.

At the time of the first occupation of New Mexico, Picuries formed a considerable village; to-day it is reduced to a mere hamlet. The ruins of a pueblo exist on one of the mesas near by, but I had no time to investigate them, and have only seen many fragments of pottery and of grinding-slabs from that locality. Of other remains I could not ascertain anything. It seems that Taos, with the ruins in the Sierra, and Picuries, with its surroundings, constituted the extreme northeastern corner of Pueblo territory in very ancient times as well as to-day. In vain have I inquired for ruins in the Costilla region north of Taos, and in the Sierra de los Ratones. The environs of Trinidad appear to be as devoid of remains of ancient buildings as the high mountains east of Picuries and the valley of Mora beyond them. This is a singular feature; for if it should be established that the course of Canadian River east of Ocaté is lined by vestiges of permanent abodes, it would place the origin of these remains out of connection with what I have called the northeastern corner of the Pueblo area in prehistoric times.

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[1] Embudo is a small Mexican town five miles from the railroad station of the same name. Peñasco, about 2½ miles southeast of Picuries, is higher than Taos, while Embudo is more than a thousand feet lower.

After this cursory glance at the districts of Taos and Picuries I pass almost due west of the former to the extensive ruined pueblos near the Hot Springs belonging to the Honorable Antonio Joseph, and, farther west still, to those near the Rito Colorado. These ruins are claimed by the Tehua Indians as those of villages built and occupied by their tribe, and abandoned long previous to the advent of the Spaniards.[1]

A distance of nearly forty miles separates Ojo Caliente from the settlements in the Taos valley. Taos lies 6,983 feet above the sea; Ojo Caliente is seven hundred feet lower. Between the Rio Grande on the east and Joseph's Springs, twelve miles of arid sandy plain intervene.

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[1] There is no indiation that the Pueblos at Ojo Caliente were inhabited at the time of Coronado, or since. It is not unlikely that when Vargas, in 1694, passed by Ojo Caliente, he noticed the ruins, but manifestly mistook them for those of the former Spanish settlement at San Gabriel or Chamita. *Relacion Sumaria de las Operaciones militares del Año de* 1694 (MS.); also Escalante, *Relacion del Nuevo Mexico* (MS. fragment).

Isolated mesas of small extent and height dominate this dreary stretch, like truncated cones or pyramids. The plain terminates on the banks of a creek whose waters are always warm. This is the Rio del Ojo Caliente, which takes its name from the remarkable medicinal thermal springs on its western banks.[1] The stream is permanent, running through a valley of not over half a mile in breadth, and watering a long, narrow strip of irrigable ground. The climate is comparatively mild in winter, while at Taos considerable cold prevails, and snow covers the ground for weeks. It was therefore an inviting spot for the establishment of permanent Indian homes. In addition to facilities for cultivation, the neighboring heights afford a plentiful supply of wood.

Three of the largest pueblos of New Mexico, Colorado, and Arizona lie on the banks of the Ojo Caliente stream, within a mile and a half of each other. Two of them I have figured on Plate I. Their relative situation is shown in the following topographical sketch. One of them stands on the first low terrace above the creek on the east bank, and is called in the Tehua language Ho-ui-ri (marked *b* on the sketch). It will be seen by referring to Plate I. Figure 6, that the houses were unusually long; that is, they formed unusually large hollow rectangles. The three pueblos, Houiri, Ho-mayo, opposite on the west bank, on a high promontory that rises at least one hundred feet over the stream, and Pose-uingge, the one immediately above the baths, are to a certain degree specimens of a kind which I have mentioned in the Fifth Annual

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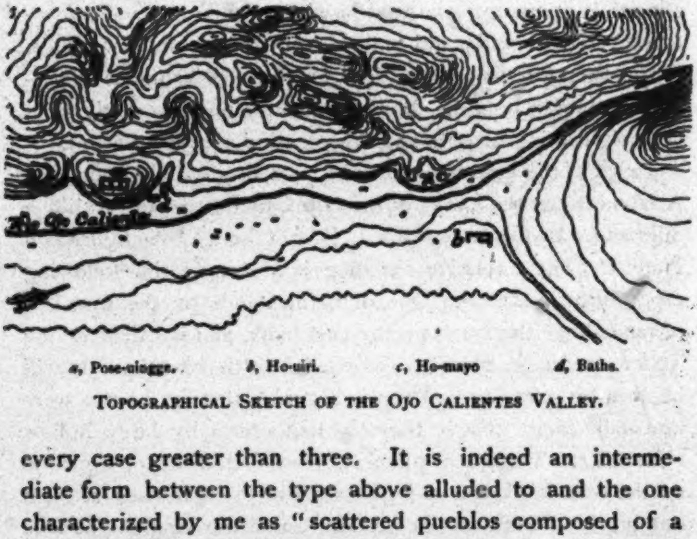
[1] These springs are highly appreciated in New Mexico. The temperature of the main spring is 114.5° Fahrenheit, and an analysis of its contents gives the following results. In one thousand parts of water: sodium carbonate, 196.95; calcium carbonate, 4.20; iron carbonate, 20.12; sodium chloride, 40.03; lithium carbonate, 1.22; magnesium carbonate, 6.10; potassium sulphate, 5.29; silicic acid, 4.10; arsenic, 10.08. Besides the four hot springs, there is a cold sulphur spring almost adjacent, and many soda springs higher up the valley.

Report of the Institute as "one or two, seldom three, extensive buildings composing the village. These structures are so disposed as in most cases to surround an interior court."[1] Thus Houiri constitutes two complete and two incomplete hollow quadrangles; Homayo, two complete and one incomplete; Pose-uingge, one complete and several partial ones. But the number of single buildings is in every case greater than three. It is indeed an intermediate form between the type above alluded to and the one characterized by me as "scattered pueblos composed of a number of large many-storied houses disposed in a more or less irregular manner. . . . They are either in irregular squares or on a line."[2] The number of single edifices in Pose-uingge, not including the estufas, is at least ten, in Houiri seven, and at Homayo five, provided decay has not obliterated alleys, thus causing two buildings now to appear



a, Pose-uingge. *b*, Ho-uiri. *c*, Ho-mayo *d*, Baths.

TOPOGRAPHICAL SKETCH OF THE OJO CALIENTES VALLEY.

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[1] *Fifth Annual Report*, Appendix, p. 55.

[2] Ibid., p. 56.

connected, which originally formed separate bodies. The outer perimeter of the great hollow rectangle of Houiri (*b*) is 415 meters (1,361 feet); the width of the rubbish mounds to which the buildings are now reduced varies from 8.6 meters (28 feet) to 14.6 meters (48 feet). This rectangle is open only on one side, where there are traces of a double row of stones. The stones are mostly thin plates set on edge, protruding but fifteen or twenty centimeters (six to eight inches) above the ground.

The pueblo was probably built of adobe, and the condition of the mounds indicates that its decay antedates that of the most southerly pueblo in the valley, the one which the Tehuas call Pose-uingge (marked *a* on the sketch).

Eight circular estufas are plainly discernible at Houiri, and there may have been ten. The great quadrangle contains three distinct ones in its interior court, and there are traces of two more. The diameter of these estufas varies between 10.4 meters (34 feet) and 15 meters (49 feet). A number of rooms still lie exposed, so that their average size can be determined. The mean of thirty-four of these cells appears to be 2.8 by 1.9 meters (9 by 6 feet).

Of artificial objects potsherds are of course most abundant. There is painted pottery, glossy with the usual figures in black and reddish brown; also corrugated ware, and incised pottery with borders in relief. Of the last sort a complete vessel, originally from the ruins of Abe-chiu, also a Tehua pueblo, is preserved in the collection of Mr. Samuel Eldodt at San Juan. The incisions are simply straight and narrow grooves, intersecting one another with a faint attempt at symmetry. The borders are indented, and seem to have encircled the upper rims of bowls, as well as the short necks of urns and jars. These vessels decorated with incised lines resemble those figured by Mr. W. H. Holmes from Arkansas County, Arkansas; while the borders in relief are like the decorations figured by him from Pecan Point.[1]

Broken metates, unfinished stone axes, flint, and obsidian flakes lie scattered about the ruins; the axes are of basalt, and the metates of lava and gneiss.

Don Tomas Lucero, who lives near Houiri, assured me that thirty years ago large jars filled with meal had been excavated from the ruins, and that skeletons had also been unearthed.

The situation of Houiri is such as to command a fair view for a few miles of the valley of the Cañada de los Comanches, a gulch emptying into it from the northeast at the foot of the low terrace on which the pueblo stands, and of the bluffs and mountains that rise above the opposite bank. There is fertile soil all around, and the stream runs at a short distance only from the ruin. No traces can be seen of defensive contrivances, other than the houses themselves; and I was assured by several persons that no ancient irrigation ditches had been noticed in the river bottom. In former times this bottom appears to have been covered with trees and dense thickets, which would account for the absence of acequias, if the Indians preferred to establish their fields on higher and open ground, rather than to attempt clearing.

Opposite Houiri, on a triangular promontory jutting out from the range of bluffs that line the river on the west, stands the ruined village to which the Tehuas give the name of Homayo (Fig. 7 of Plate I., and *c* of the sketch). It is more compactly built than the other two pueblos, and appears therefore of smaller size. Probably it contained a lesser number of inhabitants, although the mounds seem to indicate a greater number of stories of the houses. This ruin contains seven circular depressions, six of which were certainly estufas; but the seventh, the one standing farthest from the village and nearest to the brink of the steep declivity of the bluff towards the river, may possibly have been a tank. Its diameter is 9 meters (30 feet), it is quite deep, and the top of the wall is formed of slabs of stone standing on edge. The diameters of the other estufas vary from 9.0 to 15.2 meters (30 to 50 feet). The walls of the houses, as far as exposed, are mostly of adobe, with an average thickness of 0.30 m. (12 inches). The adobe shows no trace of straw, indicating that it was made previous to Spanish times.

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[1] W. H. Holmes, *Pottery of the Ancient Pueblos*, Report of the Bureau of Ethnology, 1882 and 1883, p. 282, fig. 231. A fragment of incised pottery from Abiquiu, *Ancient Pottery of the Mississippi Valley*, Ibid., p. 397, figs. 403 and 404, for the rims; p. 405, fig. 418, and p. 415, fig. 434, for the incisions. I refer only to the plastic decoration, and not to the shapes of the vases.

The situation of Homayo is very favorable for defence. On three sides, north, east, and south, are abrupt declivities difficult to scale, and at least forty meters high. The Ojo Caliente stream hugs its base closely on the eastern side. To the west extends a level depression about eighty meters broad and ten meters lower than the top of any of the mounds, and beyond that depression rises a steep mountain. The pueblo therefore stood higher than its immediate surroundings, and had an exceptionally good outlook to the east, south, and north. The annexed topographical sketch[1] shows the position of the village, and its situation in relation to three groups of what, from information gathered in Arizona and Sonora, I regard as garden plots. These are indicated on the sketch by A, B, and C. Similar contrivances are also found as a continuation of the southern end of Mound F of the ruin itself.

Of these garden beds there are two varieties. One comprises rows of stones, intersecting each other so as to form rude parallelograms and squares, found on levels; the other, such as are met with on slopes or inclines; both exist near Homayo. In some instances the stones are not thin plates set on edge, but simply fragments of various sizes laid on the ground in lines more or less straight.

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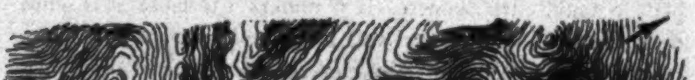
[1] This sketch is made without reference to scale or measurement, with the design only of giving the topography and location.



Sketch of the Surroundings of the Ruins of Ho-mayo.

On the same side of the river as Homayo, about a mile and a half south of it, stands the large ruin called Pose-uingge, or the village of Po-se or P'ho-se, marked *a* on the topographical sketch of the whole valley. Its position is somewhat similar to that of Homayo, as it is built on a high bluff, but not projecting so much, and it stands not so close to the river. Directly at the foot are the hot springs and the baths. The height of the bluff above the Ojo Caliente River is forty-two meters (140 feet). As this ruin has been measured and the ground plan published by Mr.

Holmes, and my own measurements confirm his, I refer to that publication for a plan of the ruin on a larger scale.[1]

It is plain to see that it was the largest village of the three, and may have sheltered at one time as many as two thousand inhabitants. Houiri however had at least one building larger than any of those of Pose-uingge. According to the custom, prevalent in ancient times, of each clan having its particular estufa, the latter village must have had at least thirteen clans or gentes, while Houiri had but eight, or at most ten, and Homayo only six. It must, however, be taken into account, that one or more estufas may have become completely obliterated, and that the same estufa may have been used, as at Taos to-day, by two or more clans.

There has been more digging at Pose Uingge than at any of the other ruins, consequently more of the architectural details are visible. They show the walls to have been of adobe bricks made without straw. I measured one and obtained the size, 0.35 by 0.25 and 0.27 m. high (14 inches by 10 and 12). In some places a layer of thin slabs of stone is intercalated between the courses of adobe, and the latter are laid without breaking joints. The average thickness of the walls is 0.30 m. (12 inches). The rooms are small, the longest one measuring 4.1 m. (13½ feet), an average of twenty-three rooms being 2.0 by 3.1 m. (6½ by 10½ feet). By complete excavation, there is hardly a doubt that larger apartments would be discovered.

In one of these rooms the face of one of the walls is exposed to a little less than its full height. In it the beams of the roof, or ceiling, have left the impressions of their ends, and a niche is also to be seen, and the upper part of a doorway. The walls, the arrangement of the cells, and the manner of construction of the roofs and ceilings, are the same as in any typical New Mexican pueblo. The doorways are nowhere fully visible, but what I saw of them indicated that they were doorways, and not doors. There was no means of closing them other than by hanging hides, blankets, or mats over the opening. All were narrow at the top, widening towards the bottom, and probably narrowing again below. As in many other villages, I saw neither lintels nor door-plates; but it is not unlikely that flags of stone may occasionally have served for such a purpose. Of air-holes I saw no trace, but it is presumable that they existed. How many stories the buildings had can only be guessed.

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[1] *Report on Ancient Ruins of Southwestern Colorado*, U. S. Geol. and Geog. Survey, Hayden, 1876, Plate XLI. and page 401.

I have already mentioned that thirteen Estufas are connected with the ruin, some of them inside, others outside, the irregular courtyards formed by the edifices. Their diameters vary between 5.5 m. (18 feet) and 13.1 m. (43 feet). One is quite remarkable in that it has an ascent to its top or roof in the shape of a solid inclined plane 10 meters (33 feet) long horizontally, and 1.7 (5½ feet) high, so that the rim of the estufa must originally have protruded nearly two meters from the ground. This kind of ascent to the roof of an estufa I have found elsewhere.

At one spot there is an excavation 2.5 m. (8 feet) long from east to west, with a niche at its eastern end 0.61 m. wide and 0.30 m. deep, walled in by thin slabs of porphyritic syenite of a reddish color. The depth is 1.9 m. (6 feet), and the roof or covering appears to have been flat. I have been told that out of this place a human skeleton was exhumed that measured, while in its original position in the ground, 2.3 m., or 7 feet and 6 inches in length. That a skeleton of unusual size was found in the ruins at Ojo Caliente seems to be almost certain, from the numerous concurring statements to that effect. The cavity, therefore, must have been a grave, in which a niche was built for the head. The plates of syenite show no trace of superior workmanship; they are simply thin slabs laid in adobe mortar. I could not find out whether the rest of the hole had also been walled in or not.

Broken artificial objects are plentiful about the ruins of Pose-uingge. The potsherds resemble those at the other ruins in the valley. Of metates I saw one made of syenite; all the others were of lava. Stone axes of basalt and syenite have been picked up. There is little obsidian, but chips and flakes of chalcedony, jasper, and flint abound. Arrowheads are not rare. The grinders accompanying the metates were made of lava, porphyry, and gneiss; some moss agates I also noticed. It is stated that large jars filled with corn, and also charred corn, have been exhumed. Perhaps the most interesting statement made to me about finds, and one which, from its source,[1] I have no reason to doubt, is that in nearly every room opened, human skeletons were found. They were in every imaginable posture, and with the skulls fractured or crushed. This has given rise to the supposition that Pose-uingge was destroyed by an earthquake. So long as we have not the exact Indian traditions concerning the place, it is useless to attempt a discussion of the matter.

The site on which the ruin stands affords an excellent point of view towards the northeast, east, and southeast. The whole valley stretches out at our feet. In the northeast, the snow-clad range of the Culebra looms up above distant hills, and south of it are the mountains of Taos. Thence to the southeast, the southern ranges of the Rocky Mountains spread out in wonderful distinctness. The Jicarrita at the north, the picturesque Truchas in the centre, and the Santa

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[1] The Hon. Antonio Joseph, Delegate to Congress, is my authority. He is himself the owner of the springs, and has resided there for a number of years at least a part of the time.

Fé range at the southern end, appear separated into well defined massive groups.

There is hardly any arable ground on the mesa occupied by the ruins, but at its northern end, where the trail comes up from the baths, there is a limited area covered with garden plots. North of the baths, separated from the eastern projection of the mesa of Pose-uingge by a deep cleft, the mountains rise with steep and denuded slopes. Still, there are promontories jutting from their base, on which, and partly on the lower end of the declivities themselves, lines of stones are to be seen forming a series of narrow parallel terraces, or larger and smaller quadrangles. As in other garden plots, the stones are plates or small slabs set on edge, or boulders and pieces of every shape and size laid on the ground in rows. Such contrivances resemble so much both the ancient garden beds of Arizona and the "Banquitos" (terraces constructed in the beds of mountain torrents) of Sonora, that I cannot but attribute to them the same object. It is interesting to find the same feature in countries as far apart as Northern New Mexico and Northern Mexico.

In close proximity to these garden plots are nearly circular concavities, resembling the vestiges of so called "dug-outs," but whether they stood in any relation to them I am unable to say. It is not impossible, however, that they were formerly abodes of nomadic Indians. The ground where the garden beds are is covered with rocky débris at the present time, but it is not barren. Low vegetation grows on it, and by keeping the surface clear from drift, it might have been made productive.

On account of the high temperature of the water of the stream, and of the hot springs issuing from the naked rock and covering them with an emerald-green stain, they were not only objects of curiosity to the native, but, like everything he does not comprehend, objects of veneration, of worship. It is not unlikely that superstition prevented the ancient Tehuas of Ojo Caliente from using the warm waters of its stream for irrigation. It is quite possible, therefore, that they did not clear that valley of its forests, and that they planted their corn, beans, and squashes on the mesas, in as close proximity as possible to the villages, relying upon the summer rains for the growth of their crops. There is less danger of persistent drought in Northern New Mexico than farther south, so that the Indian might well trust to the sky for moisture. On the west bank of the stream, in the midst of a thicket, is an elliptical ring made of boulders heaped together so as to form a crude circumvallation 4.3 m. (14 feet) wide and 0.6 m. (2 feet) high. It encloses a level space measuring 8.2 m. (27 feet) from north to south, and 7.3 m. (24 feet) transversely. What the object of this enclosure, to which there is no entrance, may have been, and whether it is ancient or modern, I am unable to determine. It may be of Pueblo origin, or it may just as well be the work of the Indians of to-day as of their ancestors, or it may be of Mexican construction, the work of shepherds.

Considerable interest attaches to the ruined sites at Ojo Caliente because the myth of Pose-yemo or Pose-ueve refers to one of them as the birthplace of that personage and the scene of his main achievements. As stated in the First Part of my Final Report,[1] Pose-ueve, which is the proper name in Tehua folk-lore, is the person around whom the Montezuma legend has gathered, or rather he has been taken as the figure-head for that modern fabrication.

As far as I am able to learn, Pose-yemo (Moisture from heaven), or Pose-ueve (He who walketh or cometh along strewing moisture in the morning), was the son of a girl of Pose-uingge. The story about his mother conceiving from a piñon nut that fell into her lap, may possibly be a genuine Indian legend. At all events, he remained, like the hero of the Zuñi folk-tale about the "Poor boy of Pin-a-ua," a wretched pauper for a long time, until the day came when a new cacique had to be chosen. Pose-ueve was proposed in jest to the medicine-men, and accepted, to the discomfiture of those who had intended to make a laughing-stock of the poor boy. At once he began to astonish all with prodigies, for which an eagle was his principal helper. He soon became a great wizard, and the people of his village grew very rich in corn, turquoises, shells, and other valuable objects. His fame spread, and he exercised a sort of power over many of the Pueblos, which, however, does not appear to have gone beyond that of a magician. Modern history affords instances of a similar sort; for example, the notorious prophet, Tecumseh's brother, whose influence was only destroyed by the defeat of the Indians at Tippecanoe.[1]

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[1] Part I. of this Report, p. 310.

Of warlike exploits of Pose-ueve I have not been able to find any traces. After remaining the great Shaman of the Tehuas for a long time, he once went to the pueblo of Yuge-uingge (Chamita) in disguise. The people were on the point of celebrating one of their dances, and failed to recognize the powerful medicine-man. So he grew angry, and pronounced a dire curse on what he considered an ungrateful pueblo, and returned to Pose-uingge, where he disappeared.

Such is the Indian part of the tale. What is told of the wizard's journey to the south is a modern addition.[2] Still, many of the Pueblos of to-day believe it, and the name of Montezuma is familiar to all of them. Those "who know," however, members of esoteric societies, and principally the great Shamans, smile at the foreign importation and foreign dress, and discriminate between the Pose-ueve of their ancestors and later additions to his biography.

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[1] So also the case of Tchatka, an Assiniboin chief and wizard, related by Father Desmet, *Western Missions and Missionaries*, Letter XIII.

[2] The Montezuma story, as told me by one of the Queres at Cochiti, contains the details of his journey to the south. Another friend, a Tehua of San Juan,

Mr. Cushing identifies the Pose-ueve or Pose-yemo of the Tehuas with the Po-shai-an-kia of the Zuñis. He writes of this deity: "He is supposed to have appeared in human form, poorly clad, and therefore reviled by men; to have taught the ancestors of the Zuñi, Taos, Oraibi, and Coçonino Indians their agricultural and other arts; their systems of worship by means of plumed and painted prayer-sticks; to have organized their medicine societies; and then to have disappeared toward his home in Shi-papu-lima (from *shi-pi-a*, mist, vapor, *u-lin*, surroundings, and *i-mo-na*, sitting place of, 'The Mist-enveloped City'), and to have vanished beneath the world, whence he is said to have departed for the home of the sun. He is still the conscious auditor of the prayers of his children, the invisible ruler of the spiritual Shipapu-lima, and of the lesser gods of the medicine orders, the principal 'Finisher of the paths of our lives.' He is, so far as any identity can be established, the 'Montezuma' of popular and usually erroneous Mexican tradition."[1]

It will be noticed that the Zuñi tradition makes of Po-shai-

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also stated to me that Pose-ueve went as far as the vicinity of El Paso del Norte in Chihuahua. He said he was accompanied by his sister, Navi-Tua, and that she followed him on Christmas! Christmas in Spanish is "Pascua de Navidad," and the word "Navitua" is suspiciously like the Spanish word. The full details of the Montezuma legend, however, are found in a queer document, entitled *Historia de Montezuma* (MS.), composed in Mexico in the year 1846, about the time of the breaking out of the Mexican war, which embodies, together with much nonsense purporting to be history, some of the original tales about Pose-ueve.

[1] *Zuñi Fetiches*, p. 16. (Report of the Bureau of Ethnology, 1880–81.)

an-kia a god, while Tehua folk-lore considers him as an historical personage endowed with extraordinary magic powers. In addition to this, the Tehuas assign a definite locality to his mortal career. I believe both personages to be the same, and while among the Tehuas Pose-ueve appears only as a hero, among the distant Zuñis he has already become a hero-god.

The Queres know Pose-ueve very well, and some of them even give him that name; but another title is applied to him at Santo Domingo. He is called "Our Father from the East, that cometh together with the Sun." This would make the morning star his fetich. This resembles another Tehua designation, which is Po-se Ye-mo T'an Se-ndo, literally, "Our sun-father, Posé-yemo." These names are titles given in worship, and subsequent to the historic appellative, which is a genuine Indian personal name.

The Tehua folk-lore concerning Pose-ueve deserves to be closely studied, as it manifestly embodies considerable ancient history of the tribe. What I have been able to give is a mere outline, which further investigations will of necessity modify. So much, however, appears to be certain: that the village of Pose-uingge was the birthplace of the Indian hero, that he was a Tehua Shaman or wizard, and that he wielded considerable influence over the whole tribe during his lifetime.

I have not been able to secure any information concerning the other two villages of the Ojo Caliente group. What the Shamans told me at San Juan, however, leads me to believe that they were abandoned before Pose-uingge; they said that Houiri and Homayo were very ancient, and that they remembered nothing about them except the names and the fact that their ancestors built and inhabited them.

I was assured that the three ruins described were not the only ones of the Ojo Caliente group. Some mentioned two, others as many as five more. But the rows of stones characterized by me as "garden beds" are frequently mistaken for foundations of ancient buildings, and in this way an exaggerated conception of the number of villages may have arisen, as it undoubtedly has in many other localities. From the extent of the valley, its topography and natural resources, I think that three villages, as large as those described, were all it could conveniently support.

Rugged mountains, mostly well wooded, rise west of the Ojo Caliente valley, and separate it from the nearest permanent watercourse in that direction, the Rito Colorado. I have not heard that any ruins have been noticed in this range. Its width is nine miles; a very picturesque and agreeable stroll, at the end of which the level basin of El Rito spreads out to the view. It is surrounded by wooded heights on all sides; its soil is dark red, and on its eastern edge flows the stream that has taken its name from the color of the ground. The Mexican settlement of El Rito lies at the northern end of the basin, near where the creek issues from a sombre and rocky gorge.

At the southern extremity of the plain, about five miles from the little town and thirty meters above the banks of the stream, lies the very large pueblo ruin, called by the Tehuas Se-pä-ue. I consider it to be the largest in New Mexico, and it could shelter more people than Casa Grande in Arizona. I have given the plan of the ruin on Plate I. (Fig. 8), and it clearly belongs to the type of the Ojo Caliente pueblos. The average size of the rooms appears to be somewhat larger; but as they are only exposed in a few of the rubbish-mounds, the average of 4.1 by 2.3 meters (13½ by 7½ feet) is no criterion. The walls are of adobe without straw, and the mounds are low and flat; a sign, perhaps, of great age, but possibly also due to heavy rains. I noticed six circular depressions, one of which measured as much as 16.5 meters (54 feet) in diameter, and has a wall of stone. The other estufas, for the former may have been a tank, measure only from 9 to 13 meters (30 to 40 feet) across. The depth of the first is 2½ meters (8 feet) at the present time. On the whole, Sepäue so much resembles the Ojo Caliente pueblos, particularly Houiri, that I need not go into any great detail. The artificial objects are of the same description as those at Pose-uingge, only there is a little more obsidian. Cedar posts still protrude, at intervals of from 2 to 2¾ meters, from the edge of one of the mounds: their diameter is in the the mean 0.18 m. (7 and 8 inches). Originally they may have stood erect, but they may have been beams supporting the roof, which after falling were gradually forced into an upright position by the débris accumulating around them.

On a plateau north of the ruins and separated from it by a deep gulch or arroyo are a number of garden plots incased by stones laid on the ground, the outlines of which are marked by heavier pieces than the compartments. The quadrangles are quite large in comparison with the narrow terraces at Pose-uingge and Homayo.

All the garden plots at Sepäue lie on a level, and at the same elevation above the stream as the pueblo. Many of the lines are nearly obliterated, so that it is impossible to reconstruct the quadrangles originally formed by them. The soil is covered with gravel; but wherever that gravel is removed, it proves fertile. In the very squares of the pueblo, neighboring settlers have recently planted corn and beans, which yielded exceedingly well, although there is no possibility of irrigation. The bottom of the Rito near the ruin is also too narrow and rocky to permit cultivation. In general, the soil of the valley is very fertile, but there is great complaint about scarcity of water. While this does not affect Indian corn much, it almost precludes the cultivation of other cereals.

The Tehuas claim Sepäue as one of their ancient settlements, but I failed to obtain any folk-lore concerning it. I was also informed that another ruin existed near by, to which the Indians of San Juan give the name of P'o-nyi Pakuen. It might be the ruin of which I was informed as lying about seven miles farther west, near the road to Abiquiu. My informant told me that near that ruin there were traces of an ancient acequia.

The elevation of El Rito is 2,071 meters (6,792 feet);[1] there is consequently a rise of several hundred feet from Ojo Caliente to it. From any point of the Rito plain, the high peak of Abiquiu[2] appears prominent in the southwest. That peak and the range of the "Valles" of which it is the northern termination indicate the western limit to which the ancient settlements of the Tehua Indians at any time extended. To what tribe or linguistic stock the numerous vestiges of pueblos along the Upper Rio Chama, north of Abiquiu and west of El Rito, must be attributed, is still unknown. I have not visited any of them,[3] Abiquiu having been the terminal point of my excursions in that direction.

From El Rito to Abiquiu the distance is about twenty miles. The difference of level is considerable, Abiquiu being only 1,808 meters (5,930 feet) above the sea. The road mostly follows the course of the Rito, the banks of which become more sandy the nearer it approaches the Chama. Picturesque rocks, curiously eroded, line the creek bottom on the east. I could not ascertain anything about ruins between the old pueblo last mentioned and the Chama. As soon, however, as the Chama valley is reached, we strike remains of Indian habitations. That valley is extremely sandy, but the soil is fertile and can always be irrigated. The bluffs lining it on the south side afford good points for observation and defence, and on these bluffs the ruined pueblos which I saw are situated.

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[1] Wheeler's measurements.

[2] 11,240 feet high (Wheeler).

[3] While at the Rito, Don Pedro Jaramillo told me of a pueblo lying west of it, and north-northwest of Abiquiu.

The modern town of Abiquiu stands almost on the site of an ancient village. That town was peopled in part by "Genizaros," or Indian captives, whom the Spaniards had rescued or purchased from their captors.[1] The Tehuas of Santa Clara contend that most of those Genizaros came from the Moquis, and that therefore the old pueblo was called Jo-so-ge. At San Juan the name was given to me as Fe-jiu. The situation of Abiquiu is a peculiar one. The main portion of the village stands on the east side of the muddy and treacherous Chama River, and on a steep embankment. On three sides it is completely shut in, — by volcanic mesas on the southeast and northwest, and by the slopes of the peak of Abiquiu on the south, — so that the only vista is to the east-northeast, where as through a gap comparatively open country is visible as far as the distant Sierra de Picuries. The ruins lie on the highest point of the present village. As far as I could discern, the pueblo formed an "L." Although it is certain that Abiquiu is a settlement dating from the past century, nevertheless I regard the pueblo as of pre-Spanish origin. It is a well established fact, that nobody dwelt there in the sixteenth and seventeenth centuries.[1] What further confirms me in the belief that the ruins are quite ancient are the objects found there. The pottery, of which there are handsome specimens in Mr. Eldodt's collection at San Juan, is the same as that at Ojo Caliente and El Rito. The metates are of a very ancient type, and there is much flint and obsidian. Axes of basalt and other stone have also been exhumed. I therefore suppose the pueblo to be ancient, and distinct from the settlement of the Genizaros. In that case it is quite likely that its name was Fe-jyu; while the modern village of rescued Indian captives would be the one called Jo-so-ge by the Tehuas of Santa Clara.[2]

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[1] There were two settlements made at Abiquiu during the past century. The first prior to 1747, since the Yutes raided it on the 12th of August of that year, killing a number of the settlers and compelling the remainder to abandon it. It is stated by Antonio de Villaseñor y Sanchez (*Teatro Americano*, vol. ii. p. 414) that in 1748 this first settlement consisted of twenty families. A second settlement was effected in 1754 (*Merced de Abiquiu*, 1754. MS.), and Fray Juan Joseph Tobedo became the first priest. *Libro de Bautismos de Santo Tomas de Abiquiu*, MS.). But the settlers had always to contend with the Yutes, and later on with the Navajos. Governor Pedro Fermin de Mendinueta had to force them to return to their homes again in 1770. *Mandamiento Sobre el Repueble del Puesto de Abiquiu* (MS.). According to Fray Agustin Morfi (*Descripcion Geográfica del Nuevo Mexico*, 1782, MS.), there were already Genizaros there in 1765, as he says: "La mision de Sto Tomas de Abiquiu se hallaba con 75 familias y 166 personas; y vecinos 104 familas con 612 almas." The same authority states that in 1779 it had 851 inhabitants. In 1794 it was certainly peopled by Genizaros (*Certificaciones de las Misiones que son al Cargo de la Provincia del Sto Evangelio de N. S. P. S. Franco de la Ciudad de Mexico, en esta Custodia de la Conversion de S. Pablo, Sita en esta prova de la Nueba Mexico*, MS.): "De Indios Genizaros de diversas naciones." In 1808, it contained 122 Indians, and 1,816 whites and mestizos. Fray Josef Benito Pereyro, *Noticia de las Misiones que ocupan los Religiosos de la Regular Observancia de N. S. P. S. Francisco*, etc., MS.

A picturesque gorge or cañon terminates above Abiquiu, and from it emerges the Chama River. The ruins above Abiquiu, and on the three branches by which the Chama is formed, I have not visited. Some of them have been noticed in the publications of the U. S. Geographical Survey and of the Bureau of Ethnology, to which I refer the student.[3]

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[1] I can find no trace of it as a settlement prior to the middle of the eighteenth century.

[2] Jo-so is the name given by the Tehuas to the Moquis.

[3] *Annual Report of the Chief of Engineers for* 1875, Appendix LL (App. J, i).

Three miles below (southeast) Abiquiu, at a place called "La Puente" (the Bridge), on a bluff close to the river on the south bank, stands the ruin which Dr. Yarrow of Washington examined about sixteen years ago, and of which he has given descriptions and a ground plan.[1] I have also figured it on Plate I. Fig. 9. The height on which the ruin stands is forty-eight meters (150 feet) above the river. Its gravelly slopes are very steep, so that for defence and observation the position was well chosen. This pueblo was built of adobe, with thin plates of sandrock intercalated in some places. An average of forty-one rooms measured gave 2.5 by 3.7 m. (8½ by 12 feet). The number of stories was certainly two, and in some places three. One single estufa is still visible. The long structures of the pueblo surround two good-sized courtyards or "squares," and rows of stones set on edge form appendixes to several of the mounds.

Nearly on the brink of the slope towards the river, between two mounds and forming the northeast angle of the principal square, stand the remains of a round watch-tower. It is connected with the buildings next to it by rows of stones forming little rectangles in one place, as if a few garden

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Part ii. p. 1086, copied into *Report upon United States Geographical Surveys West of the Hundredth Meridian* (vol. vii., Special Report by Professor E. D. Cope, pp. 351 to 360 inclusive). It is also interesting to note that ruins on the Chama were also noticed in 1776 by that remarkable monk, Fray Silvestre Velez de Escalante, during his trip to the Moqui Indians by way of the San Juan country. See his *Diario* of that journey, and the *Carta al P. Morfi*, April 2, 1778 (par. 14).

[1] See, in the volume last referred to above (App. I, i), Part ii. p. 1065, H. C. Yarrow, *Notice of a Ruined Pueblo and an Ancient Burial Place in the Valley of the Rio Chama*, pp. 362–365. The branches of which the Chama is formed are the Coyote in the west, the Gallinas north of west, and the Nutrias north. It is said that the waters of the first are red, those of the Gallinas white, and those of the Nutrias limpid. According as one or the other of these tributaries rises, the waters of the Chama assume a different hue. The word "Chama" is properly "Tzama."

plots had extended between the tower and the nearest mound on that side.[1]

Near this pueblo Dr. Yarrow discovered a number of skeletons. I copy from his Report: "After carefully examining the remains of the village, we set out in search of the graves, and found that bodies had been buried within thirty feet of the walls of the town. The arroyos, as already stated, had been washed out by water, and the falling away of the earth disclosed the remains. The first skeleton found was in the right-hand or eastern arroyo, some six or eight feet below the level of the mesa, and had been placed in the grave *face downward*, the head pointing to the south. As the body lay, we had a fine section of the strata of earth above it. Two feet above the skeleton we noticed two smooth black 'ollas,' or vases, which, when dug out, were found to contain charcoal, parched corn, and the bones of small mammals and fowls, which had doubtless been placed therein at the funeral feast; and the remaining earth to the surface contained nothing but pieces of charcoal. Not a vestige of clothing, no ornaments, implements, or weapons, were found near the corpse, and apparently no receptacle had been employed to contain it. . . . A further search in both arroyos revealed more bodies similarly buried, and we secured several skeletons. But in some cases the crania were wanting. Three or four skeletons of children were also discovered; but the bones were in such fragile condition as to crumble on exposure to the air."[2]

The mode of burial as described corresponds to the present customs of burial of the Pueblos.[3]

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[1] Although the sides of the hill are very gravelly, the summit, where the pueblo stood, has very good soil. Hence it is not improbable that a few garden plots were established in close proximity to the dwellings.

[2] *Notice of a Ruined Pueblo*, etc., p. 364.

[3] Part I. of this Report, p. 153. The custom to-day is to place a vessel filled

To this ruin the San Juan Tehuas apply the name of Abechiu, while those of Santa Clara call it Oj-po-re-ge, "Place where metates are made rough."[1] Abechiu is undoubtedly the original name, and the other one of more recent date.

That both of the villages just described were built and occupied by the Tehuas seems to be certain; and that they were abandoned previous to the advent of Europeans is positive. Further than this, I have not been able to ascertain anything regarding their history.

I was told that another ruin existed eight miles southeast of Abechiu, near the Chama; and that small houses were scattered over the high mesas. Indians of San Juan have given me the names of some of the ruined pueblos that lie on the mesas west and south of the Chama River; for instance, Fe-se-re and Te-e-uing-ge. They are said to be small. The ruin next to Abechiu which I investigated, is that of the Yuque-yunque of Coronado's time, on which part of the settlement of Chamita is erected, Yuge-uingge.[2]

Chamita lies directly opposite San Juan. The ruins form an irregular quadrangle, and even in their present condition

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with corn-meal and one filled with water on each side of the corpse in the grave. This is done to supply the soul with food and drink while it wanders through the air to Shi-pa-pu. As the journey takes four days and nights, and the only danger to which the soul could be exposed is from evil sorcerers or their spirits, the place where the person expired is kept sacred for four days by placing on it a little wooden image to represent the body. To this image are added a bowl of water, one containing food, cigarettes, and a miniature war-club, by which the soul may defend itself. To lead the fiends astray, a magic circle is drawn around the figure, and marks intended for the tracks of the pheasant, or "road-runner." As they point in all four directions it is believed they will bewilder the sorcerers when they come to take the soul, and thus prevent them from following it on its journey to Shi-pa-pu.

[1] "Lugar adonde pican los metates." As the ancient metates were not made rough by picking, I therefore conclude that it is a modern designation for the place.

[2] Castañeda, *Cibola*, p. 138. Also Part I. of this Report, p. 123, note 4.

resemble the description which Gaspar Perez de Villagran has given of the village.[1] The valley of Chamita is fertile. Situated between the Chama of the west and the Rio Grande on the east, it enjoys exceptional facilities for irrigation. For a ground plan of the ruin, I refer to Figure 10 of Plate I. Some protruding walls show that unhewn stones and rubble laid in adobe mortar entered largely into the composition of the structure. Whether the quadrangle on which a number of modern adobe houses stand to-day constituted all the village, or whether there were buildings besides, is difficult to determine, since fields extend all around the ruins. Cultivation by the Indians of San Juan, as well as by Mexicans, has obliterated every indication that might have existed formerly. The same has happened with the Spanish abodes and with the chapel of San Gabriel erected there in the fall of 1598.[2] All has disappeared; yet the tradition exists that at Chamita the first settlement of whites in New Mexico took place, and very old people still remember that the site was formerly called "San Gabriel del Yunque."[1]

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[1] *Historia de la Nveva Mexico*, 1610 (Canto xxvii. fol. 228): —

> "El Pueblo, no constaua ni tenia,
> Mas que vna sola plaça bien quadrada,
> Con quatro entradas solas cuios puestos,
> Despues de auerlos bien fortalecido,
> Con tiros de campaña, y con mosquetes."

That the village had at least two, perhaps three stories, is also indicated in the same book (fol. 228 and 229): —

> "Al arma dando todos con gran priessa,
> Requirieron los puestos, y notaron,
> Que estavan ya los altos de las casas."

Also: —

> "Los techos y terrados lebantados."

[2] Oñate, *Discurso de las Jornadas que hizo el Campo de su Magestad desde la Nueva España á la Provincia de la Nueva Mexico* (Doc. de Indias, vol. xvi. pp. 262–264). September 8th: "Dia de Nuestra Señora, fue la gran fiesta de la dedicacion de la dicha Yglesia de Sant Joan Baptista." *Obediencia y Vasallaje de San Juan Baptista* (Ibid., p. 116): "Y este pueblo do Sant Joan Baptista y el de San Gabriel el de Troomaxiaquino . . . y mas, la Cibdad de Sant Francisco de los Españoles, que al presente se edifican." This might indicate that it was Oñate's intention to call the new settlement San Francisco. But it is

Indian folk-lore has much to say about Yuge-uingge. The Tehuas relate that when their ancestors journeyed southward from Cibobe, and the division into summer and winter people occurred, of which I have spoken in the First Part of this Report,[2] the summer people, under the guidance of the Pay-oj-ke or Po-a-tuyo, settled at Yuge-uingge;

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abundantly proved that its patron saint was San Gabriel from the very beginning. Zaldivar, *Memorial* (Ibid., p. 198): "Parece que con este aparato entro hasta el asiento y Villa de San Gabriel." Zaldivar was an eyewitness. Torquemada, *Monarchia* (vol. i. p. 672): "Despachados Don Juan de Oñate, y los suios, para la jornada del Nuevo Mexico, siguieron su camino, en demanda de aquellas tierras, y en llegando á aquellas partes, tomaron posesion, por el Rei, en ellas, y el Pueblo donde Don Juan de Oñate, Governador, y Capitan General de esta entrada, hiço asiento y puso su Real, se llama San Gabriel, el qual sitio está en treinta y siete grados de altura al Norte, y está situado entre dos rios, y con las aguas del menor de los dos, se riegan los trigos, cevada, y maiz. . . . El otro rio es grande, que llaman del Norte, que cs de mucho, y mui buen pescado." Torquemada wrote not later than 1609 (*Carta Nuncupatoria*, Ibid.), and he was a contemporary of the events. He adds, on page 678: "Ya hemos dicho, que el lugar principal donde el Governador Don Juan de Oñate hiço su Poblaçon, y sentó su Real, le puso por nombre San Gabriel . . . y que tiene por vanda dos rios, vno de los quales es de menos agua, que el otro." The same author also publishes a letter from Fray Juan de Escalona, dated "De este Convento de San Gabriel de el Nuevo Mexico, á primero de Octubre de mil seiscientos y vn años." *Carta de Relacion*, p. 675. I have in my possession the copy of a document (*Peticion de los Pobladores de la Villa de San Gabriel*, MS), executed at San Gabriel in December, 1604, which begins as follows: "Cava de Sn Gabriel de la Nueba Mexico." Fray Gerónimo de Zárate Salmeron, *Relaciones de Todas las Cosas*, MS., par. 34: "Plantó su real entre este rio y el de Zama." Par. 44: "Año de 1604, á 7 dias del mes de Octubre, salió D. U. de Oñate de la villa de Sn Gabriel á descubrir la mar del Sur." Lastly, Vetancurt, in speaking of the pueblo of San Juan, says (*Crónica de la Provincia del Santo Evangelio de México*, p. 318): "Desde alli se ven los edificios de San Gabriel, primera fundacion de que se pasó á Santa Fé, á la otra parte del rio."

[1] Yunque is but a contraction of Yuge-uingge. Escalante says, in *Carta al Padre Morfi*, par. 2: "Una Villa de Éspañoles, que era de San Gabriel del Yunque, primero y despues de Santa Fé."

[2] Part I. of this Report, p. 303.

but the winter people, after wandering over the eastern plains for a long while, at last went in search of their brethren, and established themselves near San Juan in sight of the other's village at Chamita. Finally it was agreed upon that a bridge should be built across the Rio Grande, and the official wizards went to work and constructed it by laying a long feather of a parrot over the stream from one side, and a long feather of a magpie from the other. As soon as the plumes met over the middle of the stream, people began to cross on this remarkable bridge; but bad sorcerers caused the delicate structure to turn over, and many people fell into the river, where they became instantly changed into fishes. For this reason the Navajos, Apaches, and some of the Pueblos, refuse to eat fish to this day.

The story then goes on to tell that both factions united and lived together at Oj-ke on the east bank. It seems, however, that Yuge-uingge was not abandoned, since Poseueve in that pueblo met with the affront that caused him to forsake this earth, as I have already related.[1] The village was definitively forsaken in 1598, for the benefit of the Spaniards, who established themselves in the houses temporarily, until they could build their own abodes. This occurred with the consent of the Indians, who voluntarily relinquished the place to join their brethren at San Juan; and it was partly on account of this generous action that the title "De los Caballeros" was bestowed upon the Tehuas of the latter village.[2]

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[1] Yuge-uingge must have been still occupied in 1541, for Castañeda says, in *Cibola*, p. 138: "Mais ceux de Yuque-yunque abandonnèrent deux beaux villages qu'ils possédaient sur les bords du fleuve, et se retirèrent dans les montagnes. . . . On trouva beaucoup de vivres dans les deux villages abandonnés."

[2] *Historia de la Nueva Mexico* (fol. 141): —

> "Aqui los Indios mui gustosos,
> Con nosotros sus casas dividieron,

The site of Chamita does not seem to have been much occupied during the seventeenth century;[1] but although the Yutes and Comanches in the eighteenth century greatly harassed the settlers of San Pedro de Chama, as the district was called after the reoccupation of New Mexico, the number of Spanish inhabitants considerably increased.[2] The Indians of San Juan to-day still hold a portion of the arable

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Y luego que alojados y de asiento,
Haziendo vezindad nos assentamos."

Also: —

"Hazía un gracioso Pueblo bien trazado
Á quien San Juan por nombre le pusieron,
Y de los caualleros por memoria,
De aquellos que primero lebantaron,
Por estas nueuas tierras y regiones,
El sangriento estandarte donde Christo,
Por la salud de todos fue arbolado."

This disposes of the fable that the title of "Caballeros" was given to the San Juan Indians for their loyalty to Spain during the insurrection of 1680. On the contrary, the Indians of San Juan were among the most bitter and cruel of the rebels; and their participation in the risings of 1694 and 1696 is well known.

[1] *Merced de la Villa Nueba de Santa Cruz de los Mexicanos*, 1695, MS. The Spanish dwellings existing in the valley prior to the rebellion of 1680 are all indicated in this document, and were in the vicinity of the present town of Santa Cruz, — mostly towards San Ildefonso, and between that pueblo and the one of Santa Clara. Compare also *Diario del Sitio de Santa Fé*, 1680, MS., fol. 20 *et seq.*, and *Visita que Hizo el Sor Marques dela Naba de Brazinas*, 1704, MS.

[2] The name Chamita dates from the eighteenth century, and was given in order to distinguish it from the settlements higher up on the Chama River. Morfi (*Descripcion Geográfica*, fol. 99) says that seventeen families peopled it in 1744. A list nearly complete of the murders committed by the roaming Indians in the Chamita (Chama) district is contained in the *Libro de Entierros de Santa Clara*, MS. In 1748 the people of Chamita applied for permission to abandon their homes owing to these hostilities. *Peticion y auto sobre abandonar los Puestos de Abiquiu, Ojo Caliente y Pueblo Quemado*, 1748, MS. This was refused. Tomas Velez Cachupin, *Auto prohibiendo el despueble de Chama como pretendian sus moradores por ostilidades de los Yutas*, 1749, MS. In 1781 the district was visited by a terrible epidemic, which lasted about two months, and carried off a frightful number of victims. *Libro de Difuntos de Santa Clara*, 1781, MS.

lands about Chamita, and a small colony of them dwell on the west side of the Rio Grande, at the so called "Pueblito."

The delta on which Chimita is situated narrows at a short distance north of the settlement, and becomes the Chama valley, — sandy, dotted with groves of cottonwoods and flanked on the west by the mesas, — above which towers the former volcano of Abiquiu. In the east an extensive plateau, covered by a layer of black trap, separates this valley from the Rio Grande; it is called the "Mesa de la Canoa,"[1] and there are no vestiges of antiquity on its surface so far as I am aware, but there are rents and clefts in its eastern side that I have reason to believe are used to-day by the Indians of San Juan for sacrificial purposes. The eastern side of the Rio Grande is a level and very fertile expanse for a length of ten miles, between the "Joya" in the north, and San Juan in the south. This abuts against a barren table-land that stretches westwards from the Sierra de la Truchas. On this table-land there are said to be ruins, and three in the plain along the river, of which I have visited but one, Pio-ge, three miles north of San Juan. This is smaller than Abiquiu; but the disposition of its buildings appears to have been similar. Considerable pottery has been exhumed from Pio-ge, and handsome specimens are in Mr. Eldodt's possession. Among them are sacrificial bowls with the turreted rim that characterizes those vessels, and the symbolic paintings of the rain-clouds, of water-snakes, and of the libella. Similar fetiches of alabaster have also been unearthed. Pio-ge is claimed by the Tehuas of San Juan as one of their ancient villages, and they assert that it was abandoned previous to Spanish times. They also state that there are two ruins at La Joya, (ten miles north of San Juan,) one of which they call "Sä-jiu Uing-ge," and the other "*Pho-jiu Uing-ge.*"

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[1] A trail leads across it to the Rio Grande from Ojo Caliente.

The Mesa de la Canoa descends towards Chamita in a jagged spur, along whose base runs the Denver and Rio Grande Railroad. From its bald crest is an extended view, taking in the pueblo of San Juan[1] on the opposite bank, which shows above the green fields and groves of fruit trees of the river bottom. Between the river on the west and the high mountains of Nambé extends the valley of Santa Cruz, with its dismal historic recollections. Barren ridges shut in the view in the south; in front of them we see the top of the black Mesa of San Ildefonso looming up like the head of a gigantic negro. All that side of the Rio Grande except the heart of the mountains is the range of the Tehua tribe, ancient and modern; and the Indians of to-day, whenever they speak with freedom, assert that the ruins scattered over it are those of the villages of their forefathers.

West of the Rio Grande high peaks like the Pelado[2] and the Sierra de Toledo overlook the course of the river, but in much closer proximity. Bleak mesas covered with pine timber near the foot of the mountains form their base, and crowd close on to the river bank, leaving but a narrow strip for cultivation. The Mexican houses lie mostly on the first tier of bluffs, and the fields are as near the river as possible. We catch a glimpse of the pueblo of Santa Clara, and of its ungainly church. Farther south dark ridges seem to close in on both banks. Beyond the Mesa of San Ildefonso the Rio Grande rushes into the long, wild chasm which separates San Ildefonso from Cochiti, or the most southerly Tehua village from the most northerly pueblo of the Queres.

Santa Clara, or Ka-pou, lies six miles south of Chamita, and a long mile beyond Española, the terminus of the Texas, Santa Fé, and Northern Railway; it stands on a bluff, from which the Santa Fé range and the valley of Santa Cruz are seen most favorably at sunset. The church dates from 1761.[1] The former pueblo and church of Santa Clara have long since disappeared, but their site is still known to the Indians, north of the pueblo. A still older site is at the outlet of a mountain torrent called Arroyo de Santa Clara, a short distance to the west. There, say the natives, stood "old Kapo before the white man and the gray fathers came to dwell among us." But the most ancient vestiges of the Tehuas of Santa Clara lie much higher still, on the bleak table-land through which the Santa Clara Creek has cut a narrow, deep, and very romantic gorge, the Santa Clara Cañon.

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[1] Elevation 5,554 feet (Wheeler).

[2] Elevation 11,260 feet (Wheeler).

There are no ruins in this cleft; for ten miles it is a sandy groove; farther west the creek is filled with limpid water, abounding in mountain trout, and stately trees cover the bottom; thence it rises, narrowing, and finally becomes a beautiful wilderness where towering cliffs and pinnacles look down upon a maze of trees and shrubbery. Twenty-five miles separate the outlet of the gorge at Santa Clara from the crest of the Valles Mountains.[2] The Valles proper are as destitute of ruins as the heart of the eastern mountain chain; beyond them begin the numerous ancient pueblos of the Jemez tribe.

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[1] *Libro de Difuntos de Santa Clara*, 1726 to 1842 (MS., fol. 34): "En catorze de Octe año Setezientos Sesenta y uno di sepultura en esta yglesia nueva á Maria, par bula, á Jua. Antto Chapulin Soltero, qe murió Violento, y á Phelipa Donbella, quien recivió los Santos Sacramentos lo qe firme Fr. Mariano Rodriguez de la Torre, Mrõ." I give the text of this entry as a specimen of these church books, so frequently disdained, and yet so valuable for historical studies.

[2] The distances are not absolutely accurate, but according to the statements made to me, the only means of checking them being my own experience on foot. The view from the crest, where the Pelado looms up on one side and the Toledo range on the other, is really striking. The sight of grassy levels glistening with constantly dripping moisture is something rare in the Southwest. To heighten the effect, groves of "Pino Reál" and mountain aspen rise everywhere. The soil is very fertile, and there is abundant water, and yet no trace

Both north and south of the Santa Clara Cañon, about a mile on either side, and twelve miles from the Rio Grande, the light-colored pumice-stone and volcanic ashes of which the mesas are mostly formed rise in abrupt heights. On the north side a castle-like mesa of limited extent detaches itself from the foot of the Pelado. The Tehuas call it the Shu-finné, and I have seen it distinctly from a distance of thirty miles. It is not the absolute height of the rock, (I should estimate it at not over 150 feet above the mesa,) but the almost perfect whiteness of its precipitous sides and lower slopes against the dark mass of mountains that makes it so conspicuous. The perimeter of the Shu-finné is not very large, and its base is surrounded by cedar and juniper bushes with a sprinkling of low piñon trees.

Two thirds of the elevation of this rock consist of a steep slope covered with débris of pumice and volcanic tufa. Along the base of the vertical upper rim small openings are visible, which are the doorways of artificial caves. The Shu-finné contains a complete cave village, burrowed out of the soft rock by the aid of stone implements. During my last visit to Jemez I passed quite near this natural castle,— near enough to see the doorways easily, and to notice that in some places two tiers of grottos were superposed; but I had not time to ascend and examine the caves themselves. This was unnecessary, since three years previous I had investigated the other locality of artificial cave dwell-

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of ancient abodes has been found. The winters are long in the Valles, and there is too much game not to attract the cupidity of a powerful tribe like the Navajos. This may serve to explain why the Valles remained uninhabited in ancient times. I suppose that no ruin on the flanks of the chain, both east and west, is to be found at an altitude exceeding 7,500 feet.

ings, separated from the Shu-finne by a distance of only three miles. This other locality is called the "Pu-yé," and is also a mesa of pumice-rock; but it rises from the plateau that lies south of the Santa Clara Cañon.

The annexed sketch will give a better idea of the relative position of the Shu-finné (*a*) and the Pu-yé (*b*) than any written description. It is made without reference to scale, but the distance separating the two rocks from each other is about three miles. The Pu-yé lies lower than the Shu-finné, and as seen from it the latter looms up conspicuously in the north, like a bold white castle.

Only the southern and eastern sides of the Pu-yé are vertical; towards the north and west the slope is gradual. Groves of pine partly cover the summit; and quite a large pueblo ruin, with its walls of pumice still intact to the height of two stories, crowns the top of the cliff.[1]

The vertical wall in which the caves (*d*) have been excavated varies in height. In places it may be only six meters (twenty feet); in others it attains as many as sixteen (fifty

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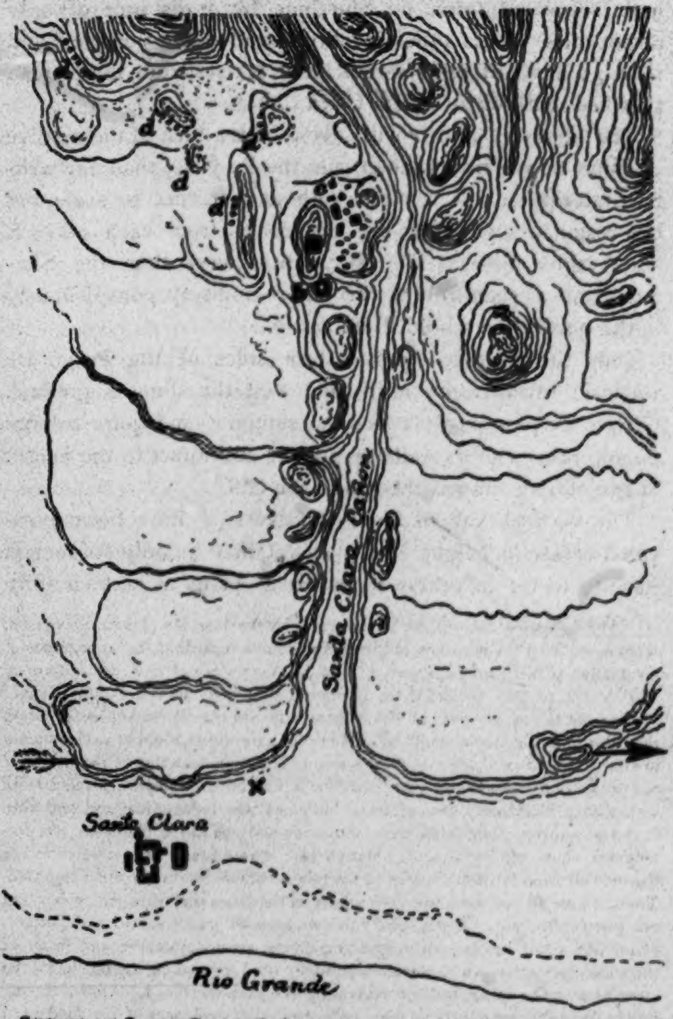
[1] The following description of this ruin, by the late Mr. James Stevenson, relieves me from the necessity of giving any details regarding the appearance of the pueblo (*Illustrated Catalogue of the Collections obtained from the Indians of New Mexico in 1880*, Report of the Bureau of Ethnology, 1880 and 1881, p. 432): "Upon the top of the mesa of which these cliffs are the exposed sides we found the ruins of large circular buildings made of square stones, eight by twelve inches in size. The walls of some of these structures remain standing to the height of ten to twelve feet, and show that from four to five hundred people can find room within each inclosure. One of these buildings was rectangular, and two were round structures. The latter were about 100 and 150 feet in diameter; the rectangular, about 300 feet square. Many small square rooms were constructed in the interior from large cut bricks of the tufa of which the bluffs are composed. These rooms all opened toward the centre of the large enclosure, which has but one general doorway. From these ruins we secured great quantities of pottery, arrow and spear heads, knives, grinding-stones, arrow-smoothers, and many of the small flint adzes, which were undoubtedly used for making the blocks for the structures on the mesa, and for excavating the cave dwellings. Among the débris in the dwellings are found corn cobs, and other evidences of the food used by the inhabitants."



SKETCH OF SANTA CLARA CAÑON, THE SHU-FINNÉ, AND THE PU-YÉ.

feet). The incline on the other hand is twenty meters (sixty-five feet) on the western, and as many as fifty meters (one hundred and sixty feet) on the eastern end. As the denuded faces of the cliff are those of the south and east, it follows that the caves extend around it from the southwestern to the northeastern corner, forming a row of openings along the base of the vertical wall. There are also scattered groups of caves in other heights near by (*d*). I did not count their number, but since they extend at irregular intervals on a line nearly a mile long, counting both faces, and there are sometimes two and occasionally three rows, they must have been capable of harboring at least one thousand people. In some places beams protrude from the rock, showing that houses had been built against it alongside of cave dwellings. There was also a level platform all along the base of the vertical declivity, wide enough at one time to afford room for at least one cell if the rock were used as a rear wall. This rock is soft and friable, and can easily be dug into by means of sharp and hard substances, such as obsidian and flint. The volcanic formation of the mountains affords sufficient quantities of both materials, but chiefly of obsidian. Basalt chisels rudely made have also been found in connection with the caves. That the caves are wholly artificial admits of no doubt, and it was in fact easier for the Indian to scrape out his dwellings than to build the pueblo whose ruins crown the summit of the cliff. Since Mr. J. Stevenson examined the Pu-yé in 1880,[1] the locality has been frequently visited, and but few specimens of broken objects are obtainable. I refer to the Catalogue published by the Bureau of Ethnology for a description of the collections made on the spot by Mr. Stevenson in 1880.[1] Mr. Eldodt has in his possession several valuable specimens from the Pu-yé.[2] These relics have nothing to distinguish them from those found in pueblo ruins in general; but the pottery is not so well decorated as that of Ojo Caliente and Rito Colorado. Fragments of a coarsely glazed variety are very abundant, and I know of but one specimen of incised ware found at or about the artificial caves.

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[1] Mr. Stevenson says in regard to the manner in which the rooms were excavated (Ibid., p. 431): "The process, from the evidences shown inside, of carving out the interior of the dwelling was by scraping grooves several inches deep and apart, and breaking out the intermediate portion; in this way the work progressed until the room reached the desired size." At the same time Mr. Stevenson was making these observations at the Pu-yé, I was arriving at similar

The ascent to the caves is tedious, for the slope is steep, and it is tiresome to clamber over the fragments of pumice and tufa that cover it. Once above, we find ourselves before small doorways, both low and narrow, mostly irregularly oval. I measured a number of the cells and found their height to vary from 1.47 (4 feet 10 inches) to 2.03 m. (6 feet 8 inches). Most of them, however, were over five feet high. The outer wall was usually 0.30 m. (1 foot) thick, like most of the pueblo walls. A single doorway sometimes serves as entrance to a group of as many as three cells, connected by short, narrow, and low tunnels, large enough for a small person to squeeze through. I noticed little air-holes and also loop-holes in the outer walls, but no fireplaces, although, as Mr. Stevenson also observed,[3] the evidences of fire are plain in almost every room. Altogether these caves must have been uncomfortable places of abode. In summer the hot sun strikes full on the face of the rock,

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conclusions concerning the artificial caves at the Rito de los Frijoles, nearly thirty miles farther south, in the same mountain region.

[1] Ibid., p. 441.

[2] The most interesting are several stone axes, and one war-club with head of stone, — all with their wooden handles, — and the stone arrow-smoothers.

[3] Ibid., p. 431.

and the line of grottos lies high above the tallest trees in the arroyo beneath. In winter smoke must have made them extremely disagreeable. The ceilings of the caves are black from soot. The floor is 0.05 m. (2 inches) thick, and appears to have been an ordinary coating of adobe mud spread on the rock and washed with blood to render it hard and smooth. Niches are frequent, and there are traces of a coating of whitewash of gypsum on the walls. On the whole, the interior of these cells resembles that of a pueblo room now of ancient type. There are even the holes where poles were fastened, on which hides, articles of dress, or dance ornaments were hung,[1] as is still the custom of the Pueblo Indians. In one room I noticed what may have been a stone frame for the metates. The interior chambers may have been used for store-rooms, or the largest of them may also have served as dormitories.

Every feature of a Pueblo household is found in connection with these caves. They form a pueblo in the rock, and there are also a number of estufas.

I have not succeeded in ascertaining that any artificial cave pueblos have been discovered north of the Shu-finné, nor are there any south of the parallel of Cochiti. But the country intervening between these two points — thirty miles from north to south, and ten miles on an average from east to west, lying west of the Rio Grande valley and east of the high crests of the Sierra de los Valles — all belongs to the peculiar volcanic formation that rendered the excavation of abodes easy. Cave villages of the kind described are consequently quite numerous, occupying an area of about three hundred square miles. They are merely a local feature, to which the Indian was induced to resort by the nature of the prevailing geological formation.

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[1] Ibid., p. 431: "Near the roofs of many of the caves are mortises, projecting from which, in many instances, were found the decayed ends of wooden beams or sleepers, which were probably used, as they are now in the modern Pueblo dwellings, as poles over which to hang blankets and clothing, or to dry meat."

The Shu-finné and the Pu-yé seem to form the northern limit of this peculiar region, — peculiar archæologically as well as geologically. The two cliffs form two distinct settlements, but they are so close together that, if they were inhabited at the same time, as seems probable, relations, either friendly or hostile, must have been frequent. But the Shu-finne stands alone; I was unable to find any traces of ruins around it on the north side of the Santa Clara Cañon, while the Pu-yé is surrounded in every direction by vestiges of ancient Indian abodes.

About two miles west of it, at the foot of the high mountains called the Sierra de Toledo, a part of the Valles chain,[1] bare cliffs show, on their eastern and southern faces, the marks of former caves, the front of which has completely fallen, leaving only arched indentations in the rock. I did not find a trace of pottery in these localities, and they all bear the marks of having been very long abandoned.

South of the Pu-yé extends a level space, whose soil appears to be quite loamy and fertile, and on this level are traces of garden plots. On a grassy plain northwest of the cliff, between it and the cañon, there are not only garden beds encased by rows of stones, as at the Rito and Ojo Caliente ruins, but considerable mounds, in one of which the remains of a wall made of pumice-stone is still visible. The buildings were evidently made of blocks of this stone, and were at least two, if not three, stories high, forming hollow quadrangles and long, low mounds.

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[1] As I shall have occasion to refer frequently to the different sections of the Valles Mountains under their current Spanish names, I give here a list of them from north to south. The northern end of the range is formed by the Sierra de Abiquiu, with the peak of the same name; then follows the Cerro Pelado; afterwards come the Sierra de Toledo, Sierra de San Miguel, Sierra de la Bolsa, and, lastly, the Sierra de la Palisada. As seen from Santa Fé, they seem to constitute one long chain of contiguous heights. West of this range, at an elevation of at least eight thousand feet, extend the grassy basins of the "Valles"; beyond it rises the high Sierra de la Jara, sometimes called Sierra de Jemez, because the Jemez region lies on its western base.

There is little pottery about these ruins, and their condition is such as would be produced by a period of decay much longer than that which both the caves and the ruin on top of the cliff appear to have suffered. In some of the enclosed spaces which I believe to have been garden plots, trees have grown up. These ruins, as well as the almost obliterated artificial caves on the base of the mountain, seem to be much older than the cave villages of the Shu-finné and Pu-yé, and the pueblo that stands on the summit of the latter.

I have spoken of the apparent fertility of the soil; but fertility alone is not sufficient for successful cultivation. Moisture also is required, and there is no possibility of irrigation on the whole mesa, north, south, or west. Towards the east it is thirteen miles to the Rio Grande. Still there is no doubt that the inhabitants had their fields around the cliffs. The cañon affords no space for cultivation sufficient for the number of people that must have occupied either one of the two rocks; but it is certain that, so near the mountains, the quantity of rainfall is sufficient, in ordinary years, to enable corn and the other indigenous staples to be grown. But in case of protracted droughts, such as are known to occur in the Southwest, the Shu-finné, the Pu-yé, and all the country around must have become uninhabitable.

For drinking purposes, a small spring lying to the north-east of the Pu-yé afforded a limited supply. The beautiful waters of the Santa Clara Creek flow at too great a distance, and access to them might frequently have been impeded.[1]

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[1] The descent to the cañon is through woods and steep valleys, where an ambuscade might easily be laid.

But a large tank had been constructed by the inhabitants of the villages, and the vestiges of it still exist. The locality therefore, fulfilled all the requirements for an Indian settlement: a good military position, arable soil, wood, and water for household purposes.

As lookout places, both cliffs are magnificently situated, commanding in every direction a superb view. The slopes of the mountains may be scanned for any living object not concealed by forests. The Rio Grande valley is visible from north of San Juan to San Ildefonso, and from Santa Clara to the gorges of Chimayo. The whole eastern chain stretches out in the distance, from Taos to its most southerly spurs below Santa Fé. In case of imminent danger, the inhabitants of one rock could signal to those of the other, night or day, as there was nothing to obstruct the view. As defensive positions they were beyond danger from assault by an Indian force. Only an ambush prepared under cover of darkness could injure those who descended from their lofty abodes in order to fetch water or till the fields. Nevertheless, constant harassing might at last compel the inhabitants to abandon even such impregnable positions, and to retire to places more distant from the range of their enemies.[1]

Who were the people that lived upon and around these two cliffs? For two consecutive years I inquired of the Tehuas of San Juan and San Ildefonso if they knew anything about the cave dwellers, and they invariably told me they did not. At last, in 1888, I became acquainted with the people of Santa Clara, and during three protracted stays at their village I succeeded in gaining the confidence of several of their principal Shamans. These medicine-men assured me that the pueblo on the summit of the Pu-yé, and the cave dwellings in that cliff and at the Shu-finné, were the work and abodes of their ancestors. Subsequently I questioned the medicine-men of San Juan, and they acknowledged that what their neighbors had told me was true, but that it was no part of their local traditional history. The same was said to me afterwards by one of the wizards of San Ildefonso. The Indians of Santa Clara also informed me that drought and the hostility of nomadic Indians had compelled the final abandonment of the sites. The statements of these Indians were so emphatic, that I am strongly inclined to believe them. The cave-houses and the highest pueblo appear therefore to have been the homes of that portion of the Tehua tribe whose remnants now inhabit the village of Santa Clara, in days long previous to the coming of Europeans.

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[1] There was not always danger of their being followed by the foe, in case of the removal of the whole village. Well authenticated cases are known in which the Apaches, after compelling the Pueblos to evacuate a certain position, did not disturb them in their new homes for a number of years.

I was not unprepared for such a result. While I lived at Cochiti, the Queres, after numerous evasive answers, and even formal denials, had acknowledged to me that the caves of the Rito de los Frijoles were the work of their tribe, many centuries ago. But while the people of Santa Clara were positive about the Pu-yé and the other cliff, they remained silent about the ruined cave villages higher up the mountains and the much deteriorated pueblos on the level around the Pu-yé. All I could elicit from them was that they "supposed" their forefathers made these also, but so long ago that they had neither recollection nor tradition concerning them. This statement of the Indians is corroborated by the general appearance of the ruins. There seem to be, therefore, the vestiges of two distinct epochs, marked by two different architectural types, — artificial caves, and communal pueblos built in the open air.

Whether the Tehuas were the builders of the older remains it is at present impossible to decide. One Indian of San Juan assured me that all the ruins on both sides of the Rio Grande, from the western slope of the Rocky Mountains to the eastern of the Valles chain, were those of former Tehua villages. Such sweeping statements must be taken with a great deal of allowance.[1] Concerning the Shu-finné and the Pu-yé, the following problems still present themselves: —

First, Were the two cliffs simultaneously occupied?

Second, Were the caves of the Pu-yé and the village on the summit inhabited contemporaneously?

Third, What caused the abandonment of these settlements?

First. I have already expressed my belief that the Pu-yé and the Shu-finné were inhabited at the same time. The appearance of both cliffs, and the amount of decay, indicate that probably only a short time elapsed between the abandonment of both. The isolated position of the northern cliff favors the hypothesis that it had to be evacuated sooner than the southern.

Second. Here two possibilities arise; one, that the pueblo is more recent than the caves; the other, that the former was the *summer*, the latter the *winter* village of the same population. I doubt very much if the pueblo is older than the caves, for it is in a better state of preservation, and the majority of the artificial objects were found there, and not in the grottos. There is nothing improbable in the hypothesis of a winter and summer village, as the caves must have been excessively hot and close during the summer months.[1]

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[1] He mentioned, it is true, two successive occupations of the country by the Tehuas. In the first, the tribe kept along the heights for the reason that the bottom and valley of the Rio Grande was too moist for habitation; then they spread to the south as far as the region of San Pedro, and, turning back, settled again near the sites of their earliest abodes: lastly, they descended into the Rio Grande valley. This tale is by no means to be rejected, but further investigation is necessary before we can pass judgment upon it. The ruin at San Pedro marks the southern limit of the range of the Tanos, who were the southern branch of the Tehuas; and on the west side of the Rio Grande, Tehua ruins lie within twenty miles north of Cochiti. On the east side, Tanos ruins are found three miles east and northeast of the latter pueblo.

Third. The Santa Clara people stated to me that drought and wars were the causes of the abandonment of the cliffs and the pueblo. The former reason especially seems highly probable, but there may have been still another. The rock is exceedingly friable, and its deterioration from atmospheric action is rapid. Still, comparatively few caves are so far gone as to have lost the front walls. The older cave dwellings, however, about which the Tehuas could give me no positive information, show such disintegration of the face of the rock very plainly. Whenever it set in, there was no remedy for it, and the inhabitants were compelled to move. This may have been one of the causes why the pueblo on top of the Pu-yé was built; the inhabitants may have seen that their cave dwellings were becoming untenantable.

The country south of this interesting spot abounds in artificial caves; in nearly every gorge the southern and eastern cliffs show the traces of such abodes. With but one exception these gorges have no permanent water as far south as the Rito de los Frijoles; but springs have been discovered here and there on the long and narrow mesas that separate the cañons, and also in the river bottoms. These bottoms are frequently well wooded, and the forests encroach also upon the mesas the nearer we approach the latitude of San Ildefonso. I heard of no pueblo ruins except caves on the mesas immediately south of the Pu-yé, but a little above San Ildefonso stands quite an extensive ruin, through one angle of which the track of the Texas, Santa Fé, and Northern Railroad is carried. Pe-ra-ge, as the Indians of San Ildefonso call it, lies not far from the river, on the first terrace of the bluffs. The pueblo was built of rubble and stones, and consisted of several apparently connected quadrangles. It is therefore of the type of Se-pä-ue and Abe-chiu, but not as large as the former. The Tehuas of San Ildefonso state that it was inhabited by their ancestors before the coming of the Spaniards, and that they removed thence to the east bank of the Rio Grande. This change of location occurred previous to the sixteenth century. We have therefore in this tale about Pe-ra-ge a fragment of the ancient history of San Ildefonso, just as the lore about Chamita affords a glimpse into the past of San Juan, and the tales concerning the Pu-yé and vicinity throw light upon that of the Santa Clara tribe.

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[1] At the present day the Indians of Acoma have their summer village, Acomita, at a distance of fourteen miles from the rock, and nearly the whole population emigrate thither every year. The Zuñis move to Pescado, to Aguas Calientes, and to Nutria, so that their pueblo is almost deserted from spring to fall.

The country west of the Rio Grande, between Pe-ra-ge in the north and the vicinity of the Rita de los Frijoles in the south, is wild, with deep cañones traversing it like gashes cut parallel to each other from west to east. They are mostly several hundred feet in depth, and in places approaching a thousand. On the northern walls, facing the south or east, caves, usually much ruined, are met with in almost every one of them. There are also several pueblo ruins on the mesas, about which I have only learned from the Indians that they were Tehua villages, and that their construction, occupation, and abandonment antedate perhaps by many centuries the times of Spanish colonization. The Tehua names for these ruins are, respectively, Tzi-re-ge, Sä-ke-yu, and Po-tzu-ye.

Almost opposite San Ildefonso begins the deep and picturesque cleft through which the Rio Grande has forced its way. It is called "Cañon Blanco," "Cañon del Norte," or "White Rock Cañon." Towering masses of lava, basalt, and trap form its eastern walls; while on the west those formations are capped, a short distance from the river, by soft pumice and tufa. As far as I could ascertain, the last two pueblos mentioned lie near the line where the two formations touch each other. Tzi-re-ge[1] stands on a higher level, and is built of pumice and volcanic tufa. The plateau on which this ruin is situated slopes towards the east, and is of inconsiderable height. Its southern side is abrupt, and numerous cave dwellings have been excavated in it. Southeast of the ruin in a bottom lies a spring, with forests all around, though not immediately adjacent to the ruin. Tzi-re-ge was quite large, and comprised several quadrangles, after the manner of the northern Tehua pueblos, but I was not able to make measurements of it. I have seen considerable pottery from it, chiefly black ware, decorated with indented rims, and other simple plastic ornamentation. In a straight line Tzi-re-ge lies seven miles from San Ildefonso, and its altitude above the river I estimate at one thousand feet, if not more.

South of Tzi-re-ge, there are caves in the deep Cañada Ancha and other gorges. On the summit of the Mesa del Pajarito I found ruins of small houses with garden plots. The Mesa del Pajarito[2] forms the northern rim of a deep gorge called Rito de los Frijoles. In the cliffs of this romantic mountain valley, the largest and best preserved cave villages of the whole region are to be seen. These caves are no longer claimed by the Tehuas, but by the Queres.

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[1] It is also called "Pajaro Pinto," from a large stone, a natural concretion, found there, slightly resembling the shape of a bird.

[2] The Queres call it "Tziro Ka-uash," of which the Spanish name is a literal translation.

What tribe erected the buildings on the Mesa del Pajarito I could not learn. Here the ancient range of the Tehuas terminates on the west side of the Rio Grande, and I turn to cast a glance at the antiquities on the east side of the river.

A volcanic plateau skirts the Rio Grande, beginning south of San Ildefonso, and extending to a few miles southeast of Cochiti, twenty-five miles long from northeast to southwest, and fifteen miles transversely. This plateau is surmounted near its southern end by the isolated height of the Tetilla.[1] This peak is only 2,153 meters (7,060 feet) high, and presents on all sides the appearance of a pointed cone resting on a gracefully curved basis. North of the Tetilla lie several ancient craters, whose sides have crumbled and are now rounded eminences or jagged humps. A layer of trap and lava covers the cretaceous formation to a depth of a hundred feet or more. The nearer we approach San Ildefonso, the wilder the scenery becomes, and the broad cañadas that traverse it are without permanent water. I know of only one ruin in this region, which stands three miles northeast of Cochiti on a rocky bluff of volcanic origin in the so called "Caja del Rio." Whether the Tehuas, the Tanos, or some other unknown tribe, were the builders of it, I am unable to say. The people of Cochiti disclaimed all knowledge of its former occupants.[2] The amount of arable soil in the vicinity is sufficient; for the population, as I estimate it, could not have exceeded four hundred. (See Plate I. Fig. 12.) The appearance of the mounds, to which the ruin is now reduced, is exceedingly ancient. Over them opuntias have grown, and indicate from a distance their shape and extent. The usual remnants of pottery and stone implements, including obsidian, are scattered about the ruin. The walls were of rubble, and I noticed only two estufas. The position is a good one for observation and defence. To the west especially the view is striking, the sombre cañones opening directly opposite, beneath the bold crest and peaks of the Sierra de San Miguel. The height of the ruin above the river must be several hundred feet, and the declivities are perpendicular in part, so that the stream seems to hug the base of the rock on which the pueblo was perched. On the waterless plateau called El Cuervo, farther north, I know of no ancient vestiges, and both the Cañada Ancha and Cañada Larga, at the foot of that wide and long mesa, I have been informed, are devoid of all remains of former Indian habitations.

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[1] "Shkasi-sku-tshu," in Queres the pointed height; Ta-pu, in Tehua, which has an analogous signification."

[2] They call the ruin simply, Ti-tji Hän-at Ka-ma Tze-shu-ma, "The old Houses in the North," or Chin-a Ka-na Tze-shu-ma, "The old Houses on the River."

Neither the Queres of Cochiti nor the Tehuas of San Ildefonso gave me any traditions concerning the volcanic phenomena of which the Tetilla and the ancient craters bear testimony; but I do not think that this silence was intentional on the part of the Tehuas, as they spoke without reserve concerning other volcanic phenomena near San Ildefonso.[1] They say that "once upon a time," very, very long ago, smoke issued simultaneously from four different points. From the heights on the Mesa del Cuervo, or To-ma, from the "Gigantes," or the black cliff of Shyu-mo south of San Ildefonso, from the Tu-yo, or the black Mesa of San Ildefonso north of the village, and from another point in high mountains, which I could not locate. Of earthquake shocks, fire, or lava, they told me nothing; neither could I find out how long ago this happened.

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[1] The Tehuas call the Mesa del Cuervo, and the heights which crown it, To-ma, and the gigantic rocks forming the entrance to the Rio Grande gorge south of their village, Shyu-mo.

The pueblo of San Ildefonso, or Po-juo-ge, offers nothing of archæological interest. After the uprising of 1696, when the church was ruined by fire,[1] the village was moved a short distance farther north, and the present church is located almost in front of the site of the older one, to the north of it. Neither does the black mesa called Tu-yo, two miles from the village, deserve attention except from an historic standpoint. It was on this cliff that the Tehuas held out so long in 1694 against Diego de Vargas.[2] The ruins on its summit are those of the temporary abodes constructed at that time by the Indians. On the steep side of the Tu-yo there is a cave about which some fairy and goblin stories are related, which may yet prove useful for ethnological and historic purposes.

San Ildefonso lies eight miles south of the town of Santa Cruz, and in a direct line about twelve south of San Juan. Between the latter pueblo and Santa Cruz I know of no ruins; but the valley, or cañada, at the outlet of which this Mexican settlement is situated, has a number of sites which the Tehuas claim. In some cases, near Santa Cruz, for instance, every vestige has disappeared from the surface. Higher up toward Chimayo, there are said to be well defined ruins on the mountain sides, the names of two of which are Po-nyi Num-bu and Yam P'ham-ba.[1] The former is very ancient, but Yam P'ham-ba was a village which the Tanos constructed in the vicinity of Santa Cruz after the uprising of 1680, when they forsook the Galisteo region and moved north in order to be nearer to their kindred, the Tehuas.[2] There is also a ruin in that neighborhood, I-pe-re, or San Lázaro, which dates from the same period. Both were abandoned after the reconquest, San Lázaro in 1694, and Yam P'hamba or San Cristobal in the same year. It was subsequently reoccupied, and finally deserted in 1696, after the murder of the missionary Fray José de Arvizu on the 4th of June.[3] In the Cañada of Santa Cruz, consequently, there are ruins of historic, as well as of pre-historic pueblos; a fact which future explorers should bear in mind.

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[1] This occurred on the 4th of June, 1696. Two priests, Father Francisco Corbera and Father Antonio Moreno, were murdered by the Indians, who during the night closed all the openings of both church and convent, and then set fire to the edifice. Several other Spaniards also perished. The facts are too well known to require reference to any of the numerous documents concerning the events.

[2] No documentary proof of this is needed. Vargas made four expeditions against the mesa, three of which proved unsuccessful. The first was on the 28th of January, 1694, and as the Tehuas made proposals of surrender, Vargas returned to Santa Fé without making an attack upon them. But as the Indians soon after resumed hostilities, he invested the mesa from the 27th of February to the 19th of March, making an effectual assault on the 4th of March. A third attempt was made on the 30th of June, without results; and finally, on the 4th of September, after a siege of five days, the Tehuas surrendered. Previously they had made several desperate descents from the rock, and experienced some loss in men and in supplies. The mesa is so steep that there was hardly any possibility of a successful assault.

The sandy Arroyo Seco, between Santa Cruz and Pojuaque, has neither permanent water, arable soil, nor ruins.[4] But the banks of the Pojuaque stream, from its sources at the foot of the Sierra de Nambé to its outlet into the Rio Grande at San Ildefonso, are lined with the débris of former Tehua pueblos. Upon this same stream there are two inhabited pueblos besides the one last mentioned, Na-i-mbi, or Nambé, and P'o-zuang-ge, or Pojuaque.

The valley in which the former of these two villages stands is not only very fertile, but very well irrigated. The Rio de

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[1] The site of Yam P'ham-ba is probably that of the so called "Puebla," two miles east of Santa Cruz.

[2] Vargas found them there in 1692, when he made his first successful dash into New Mexico.

[3] With him was killed the priest of Taos, Fray Antonio Carbonell.

[4] The Arroyo Seco was the scene of the engagement in August, 1837, in which Governor Perez was routed by the insurgents from Taos and Northern New Mexico.

Pojuaque, called in its upper course Rio de Nambé, is a swift and limpid brook that leaves the mountain gorges but a short distance above the Nambé pueblo. Mesas with abrupt sides border upon the valley in the east, and on these there are pueblo ruins. The Indians of Nambé assert that they were reared and occupied, as well as abandoned, by their ancestors prior to the establishment of Spanish rule in New Mexico. They also gave me some of the names: T'o B'hi-päng-ge, the former village of the Nambé tribe, eight miles northeast of the present pueblo; Ke-gua-yo, in the vicinity of the Chupaderos, a cluster of springs about four miles east of Nambé in a narrow mountain gorge; and A-ga Uo-no and Ka-ä-yu, both in the vicinity of the Santuario in the mountains.

Around the Pojuaque of to-day cluster ancient recollections. A large ruin, called by the San Juan Indians Te-je Uing-ge O-ui-ping, occupied the southern slope of the bleak hills on which stands the present village. The Tehuas claim that this pueblo marks the centre of the range of their people, and that the division into two branches, of which the Tehuas became the northern and the Tanos the southern, took place there in very ancient times. Certain it is that in the sixteenth century the Tehuas already held the Tezuque valley ten miles south of Pojuaque, as they still hold it to-day.

Pojuaque, or P'o-zuang-ge, was inhabited when Oñate occupied New Mexico. After the rebellion of 1680 it was abandoned, and only resettled in 1706 by order of the Governor Don Francisco Cuerbo y Valdés.[1] The student of antiquities should therefore bear in mind that at Pojuaque he will find pre-historic and historic remains in close proximity to each other.

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[1] *Testimonio de Diligencias sobre la Fundacion de Albuquerque, de Sta Maria de Grado, de Pojuaque y Galistéo*, 1712, MS. The settlement began with only five families of Indians in 1706.

On the south side of the Pojuaque River, between that village and San Ildefonso, two ruins are known to exist; Jacona, or Sacona, a small pueblo occupied until 1696,[1] and I'ha-mba, of more ancient date. I have not heard of any others in that vicinity.

Near Pojuaque the Tezuque stream enters that of Pojuaque from the southeast. On its banks, about three miles from the mouth, stand the ruins of Ku Ya-mung-ge. This Tehua village also was in existence until 1696, when it was finally abandoned.[2] Higher up, in the Tezuque valley proper, are various sites which the Indians of Te-tzo-ge (Tezuque) state are those of settlements of their forefathers. I have not been able to learn their names of these ruins, most of which are almost obliterated.

With the valley of Tezuque the range of the Tehuas in the southeast, as it was in the sixteenth century, terminates. I would not be understood to claim that I have enumerated all the ruins scattered over this area, nor to assume that all of them are of Tehua origin. Even where positive tradition claims an old pueblo for the Tehuas, it must be taken with a grain of allowance until that tradition has been confirmed in different ways. It is also probable that the Tehuas drifted at one time farther south than the Tezuque valley, which would account for the spread of the Tanos as far as San Pedro.

Nearly six miles separate the Tezuque village from a high crest in the south, from which a magnificent view is enjoyed over the whole country of the Tehuas. Looking south from the "divide," as this point is called by the people of Santa Fé, the landscape is different. A wooded declivity seems to overhang a wide and arid plain. The last spurs of the Santa Fé range border this plain on the east, and separate it from the Pecos valley. Mountains with jagged profiles cluster together in the southwest. Behind them a broad mass looms up, the Sierra de Sandia. The bleak looking expanse and the rugged mountains beyond were the country of the Tanos, to which and to its ancient remains the next chapter will be devoted.

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[1] In 1680 Jacona was an "aldea" only. Vetancurt, *Crónica*, p. 317. It belonged to the parish of Nambé. After its abandonment, it became the property of Ignacio de Roybal, in 1702. *Merced de Jacona*, MS.

[2] In 1699 the site of the pueblo was granted to Alonzo Rael de Aguilar; in 1731 it was regranted to Bernardino de Sena, who had married the widow of Jean l'Archévèque or Archibeque.

II.

THE COUNTRY OF THE TANOS.

ANTONIO DE ESPEJO in 1582 called the Tanos "Maguas," and described a part of their country as follows: "There they have no river, neither have they running brooks nor springs of which they make use. They have much maize and many fowls of the country, and supplies like those of the province spoken of before, in great abundance. This province borders upon the country of the cows called the cows of Cibola." [1]

A truer and at the same time more concise description of the basin of Galisteo, which constitutes the principal portion of the former Tanos country, could hardly be framed. The Galisteo plain, however, constituted only the eastern portion or half of the range of the southern Tehuas, or, as they are called, the T'han-u-ge, or Tanos. Those Indians also claimed the environs of Santa Fé, and the ruins of their villages are scattered as far as San Pedro in the south, the Rio Grande valley in the west, and the mesa of Pecos in the east.

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[1] *Relacion del Viage* (Doc. de Indias, vol. xv. p. 114). *Expediente y Relacion* (Ibid., p. 176). "A qui no alcanzan rio, ni tienen arroyos que corren y fuentes de que se siruen, tienen mucho maiz y gallinas de la tierra, y bastimentos y otras cosas como in la provincia dicha antes de esta, en mucha abundancia; esta provincia confina con las vacas que llaman de Cibola." The "provincia dicha antes de esta" was that of the Tiguas, or the Rio Grande valley about Bernalillo. I would call attention here to the difference in text between the two documents above quoted, which are the original reports of Espejo, and the corrupt version in Hakluyt's *Voiages*, vol. iii. The latter says: "Y a dos dias de camino toparon con vna prouincia donde vieron onze pueblos, y en ellos mucha gente, que a su parecer passaua en numero de quarenta mil animas; era tierra mui fertil y bastecida, cuyos confines *estan inmediatamente juntas con las tierras de cibola, donde ay muchas vacas*" The Italics are mine. This is sufficient to demonstrate the complete change in the text. The original versions speak of the "Cows that are called cows of Cibola," while Hakluyt's version says that the country was "Cibola." Such perversions are common in the document in question, and I caution students as to its use.

The Rio de Santa Fé flows from east to west through the northern section of this area, and the San Pedro, or Uña de Gato, irrigates its southwestern corner. But the waters of neither of these streams reach the Rio Grande except during heavy rains. The first named "sinks" twice: between Agua Fria, southwest of Santa Fé, and the Cienega; and again, farther west, between La Bajada and Cochiti. The San Pedro dwindles down to the sandy Arroyo del Tunque, twelve miles east of the Rio Grande. Mountain torrents traverse the district in its centre, such as the dangerous Arroyo de Galistéo.

The plateau of Santa Fé is not barren, although generally arid. Rain will at once, in summer, develop on it a peculiar vegetation, and aboriginal crops could prosper in ordinary seasons. But it cannot compare in facilities for irrigation and in fertility with the delta of Chamita or the San Juan valley, or even with the little vales of Nambé, Pojuaque, and Tezuque. Its altitude is considerable, (2,000 meters or 6,500 feet on an average,[1]) and the climate is correspondingly cool, with short seasons, and it is of exceptional salubrity. Cool winds temper the summer's heat, without ever assuming the character of destructive tempests.

The gorge through which the Santa Fé River issues from the high eastern range[2] is said to contain ancient ruins.

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[1] The altitude of Santa Fé signal station is 6,862 feet (Wheeler); of Agua Fria, six miles to the southwest, 6,486 feet; of Cieneguilla, twelve miles southwest of Santa Fé, 6,011 feet.

[2] Two of the highest peaks of the southern Rocky Mountains rise within a comparatively short distance of Santa Fé, — Baldy, 12,661 feet, and Lake Peak, at the foot of which the Santa Fé River rises, 12,405 feet.

Vestiges of a pueblo have been noticed on the site of Santa Fé itself, but they are now obliterated. It is certain that when the Spaniards removed to Santa Fé from Chamita, in 1605, the place was deserted, and had been in that condition for at least a century.[1]

The Tehuas call the site of Santa Fé by at least two different names: Kua-p'o-o-ge, the place of the shell-beads near the water, and Og-a-p'o-ge. The former name comes from San Juan, the latter from Santa Clara. They also acknowledge that a Tanos village stood on the spot; but this may possibly refer to the pueblo constructed after 1680 by the Tanos from Galisteo, on the ruins of the old "palace" of Santa Fé.[1] Nevertheless, I regard the fact that a Tanos village also existed here in pre-historic times as quite certain.

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[1] Not one of the pueblos mentioned by Castañeda, or by any other of the chroniclers of Coronado's expedition, corresponds to the situation of Santa Fé. Espejo approached this site, but not near enough to see it. Oñate, *Obediencia y Vasallaje de San Joan Baptista*, also *Discurso de las Jornadas*, is absolutely silent about it. The last document is decisive, as it establishes that Oñate went from San Marcos directly to San Ildefonso through an uninhabited country. Had there been a village at Santa Fé, he could not have avoided stating it. Benavides, *Memorial*, 1630, p. 26, only speaks of the "Villa de Santa Fé, cabeça deste Reino, adonde residan los gobernadores, y Españoles, que seran hasta dozientas y cincuenta, aunque solos los cincuenta se podran armar por falta de armas . . . á este presidio sustenta V. M. no con pagas de su caxa real, sino haziendo los encomenderos de aquellos pueblos, por mano del gouernador; el tributo que les dan los Indios, es cada casa una manta, que es una vara de lienço de algodon, y una fanega de maiz cada año, con que se sustentan los pobres Españoles; tendrán de seruicio setecientas almas de suerte, que entre Españoles mestizos, y Indios acerca mil almas." This "seruicio" consisted of *Mexican* Indians, *not* of Pueblos. The abodes of these were on the south bank of the little river, and the church of San Miguel was the chapel of the Mexican Indians, and not a pueblo church. *Diario del Sitio de Santa Fé*, 1680, MS., f[illegible]. 24. August 13th: "Y á otro dia por la mañana se descubrio el egercito del enemigo en el Llano de las Milpas de S: Miguel, y casas de los Mexicanos saqueandolas." *Diario de la Retirada de Don Antonio de Otermin para el Paso del Norte*, fol. 54. 55. Diego de Vargas, *Autos de Guerra de la segunda Entrada al Reino y Provincias de la Nueva Mexico*, 1693, fol. 71: "Pase á reconocer la Yglesia o ermita que servia de parroquia á los Yndios mexicanos que viuian en esta dha Uilla con el título de la echocacion de su Patron el arcangel Sn Mig^{l}." *Relacion Anónima de la Reconquista* (Documentos para la Historia de México, Tercera Série, p. 141): "Pasó á là capilla de San Miguel, que antes servia de parroquia á los Indios Tlaxcaltecas." Escalante, *Carta al Padre Morfi*, par. 3: "Dia 15 sitiaron á esta los Tanos de San Marcos, San Cristóbal y Galistéo, los Queres de la Cienega, y los Pecos por la parte del Sur, se apoderaron de las casas de los Indios Tlascaltecas, que vivian en el barrio de Analco y pegaron fuego á la Capilla de San Miguel." Analco is the place where there is now the so called "oldest house"; but this name was given to it only in the past century. Fray Agustin Morfi, *Descripcion Geográfica*, MS., fol. 96. Compare also Part I. of this Report, p. 125.

Five miles south of the capital of New Mexico, on the southern bank of a deep and broad gulch called Arroyo Hondo, stand two ruins, called Kua-kaa or Kua-kay by the Tanos,[2] who affirm that their ancestors built them. The larger of the two has been figured on Plate I. Fig. 21; the smaller one lies about a mile to the east of it, at the upper end of a rocky gorge through which the Arroyo Hondo has cut its deep bed. It is a so called "one-house" pueblo; the outer perimeter of the well defined mounds was 154 meters (505 feet); and it was certainly two stories high. The larger pueblo was capable of lodging about two hundred households, or seven hundred persons. The walls were made of broken stones, and there is much pottery, — black and white, red and black, black, red, white, and orange; also, corrugated and indented ware; but no incised specimens. The usual fragments of stone implements are found; also obsidian, flint, bones, and some charred corn. The situation is a good one for observation and defence, commanding a wide view down the arroyo, and to the west and southwest across the plain. To the south is a level expanse, and on the north lies the arroyo, at a depth of nearly fifty meters. The pueblo stands on the brink of the declivity, which is very steep, and a spring rises at the bottom. For cultivation, the people of Kua-kaa had to resort to the plain around their village, since irrigation is impossible, either below or above. This pueblo bears the marks of long abandonment; the mounds are flat and at most two meters (six feet) high, or generally lower. The Tanos claim that it was pre-Spanish, and documentary evidence as well as the nature of the objects found there corroborates the statement.

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[1] *Relacion Anónima*, Tercera Série, p. 139. "Entró en el Pueblo de los Tanos y [de] Galistéo, puesto desde el alzamiento en las casas reales de dicha villa." Ibid., p. 144: "Desalojar á los Indios Tanos de grado ó por fuerza del pueblo que en las casas reales habian fabricado y en que actualmente vivían." Father Escalante, who, as Mr. H. H. Bancroft very judiciously remarks, was probably the author of these "Relaciones," had at his command the complete journal of Vargas. Now there are only fragments at Santa Fé, but among them the description of Santa Fé as it appeared in 1692 and 1693 is not found. Escalante says, in his *Carta al Padre Morfi*, par. 10: "En Santa Fé estaban fortificados los tande de Galistéo." Lastly, there is a description of the Tanos village at Santa Fé in the *Autos del Cabildo de Santa Fé, justificando á Don Diego de Vargas*, 1703, MS.

[2] These names in the Tehua language were given to me by an old Tanos Indian living at Santo Domingo. There are a number of Tanos still residing at that village among the Queres, and some of them speak Spanish in addition to the Tehua and Queres languages.

I know of no vestiges of antiquity south and east of the Arroyo Hondo nearer than those at Peñas Negras, and in the vicinity of Lamy on the Atchison, Topeka, and Santa Fé Railroad. Before treating of these, I prefer to dispose of such ruins as lie to the west and southwest of Santa Fé.

We meet with a considerable one at the Cienega, near where the Santa Fé stream enters a narrow defile called the "Bocas." This is the pueblo of Tzi-gu-ma, or Tzi-gu-may. Until 1680, this village, under the name of "La Cienega," belonged to the ecclesiastical jurisdiction of the mission of San Marcos.[1] It was abandoned during the time that the Pueblos were independent, and an effort to repeople it was made by Diego de Vargas after the pacification of New Mexico in 1695, but with little success.[2] Tzi-gu-ma is therefore an historic pueblo. Nevertheless, I am in doubt as to which stock its inhabitants belonged. They are mentioned as being Queres in such documents as are at my command,[1] but the people of Cochiti do not regard them as having been of their own stock, but as belonging to the Puya-tye,[2] or Tanos. Furthermore, the name Tziguma is a Tehua word signifying a "lonely cottonwood tree," in Spanish "alamo solo." Until the question is decided by further researches among the Tanos of Santo Domingo, I shall hold that the pueblo was a Tanos village.

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[1] Vetancurt, *Crónica*, p. 324.

[2] *Relacion Anónima*, p. 167. In 1782 there were no Indians there. The four

The same difficulty exists in regard to San Marcos. This ruin I have not seen, but descriptions by intelligent persons represent it as a very considerable village, and as having formed several quadrangles. Its name in Queres is Ya-tze,[3] but the Tanos call it Kua-kaa, the same name as the one on the Arroyo Hondo. In 1680, at the breaking out of the insurrection, it had six hundred inhabitants.[4] The name San

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distinct settlements still in existence to-day in that vicinity, Cieneguilla, Alamo Solo, Golondrinas, and Cienega, were all peopled by Spanish families. Morfi, *Descripcion Geográfica*, fol. 98.

[1] *Diario del Sitio de Santa Fé*, fol. 12. Otermin makes a distinction: "Que se han alzado los Indios Tanos, y Pecos, Cienega, y San Marcos." But Vargas, *Autos*, fol. 25, after having previously (fol. 24) spoken of them as attacking Santa Fé from the south, and enumerating the four tribes, adds: "Con que se pusieron en fuga los dichos Tanos y Pecos." Escalante (*Carta*, par. 3) is quite positive: "Los Queres de la Cienega."

[2] Puya-tye is the Queres name for the Tanos. It is a sobriquet applied to this tribe on account of their custom of doing penance by pricking their bodies with cactus, and other spines. This, however, is of later origin, and is derived from "Púa," thorn or spine.

[3] It appears under the name of "Yates" in the *Obediencia y Vasallaje de San Joan Baptista.*

[4] Vetancurt, *Crónica*, p. 324: "Tenía seiscientos cristianos, de nacion Queres." On the other hand, Escalante (*Carta*, par. 3) writes as follows: "Dia 15 sitiaron á ésta los Tanos de San Marcos, San Cristóbal y Galistéo, los Queres de la Cienega, y los Pecos por la parte del sur." Vargas (*Autos de Guerra de la segunda Entrada*, MS.), mentions repeatedly Queres Indians from San Marcos. It may be that there were both Queres and Tanos in the pueblo, but I consider

Marcos appears to have been given to it in 1591 by Gaspar Castaño de Sosa.[1] It was abandoned by its inhabitants during the siege of Santa Fé, in August, 1680;[2] and in 1692, when Diego de Vargas passed through it, it was in ruins, with only a few of the walls still standing and a portion of the church edifices.[3]

Near San Marcos lies the celebrated locality of Callaite, called popularly the "turquoise mines." The turquoises are imbedded in a white porphyritic rock, and a high authority on gems, Mr. George F. Kunz, has informed me that the New Mexican turquoise bears greater resemblance to the Egyptian than to the Persian specimens of that mineral. Beautiful stones have been found occasionally;[4] also very large masses of an inferior quality. The Tanos of Santo Domingo regard themselves as the owners of the site and visit it frequently to procure the stones that are so much esteemed by them. As to the popular belief in ancient mining of turquoises, it is, like many others of the kind, a myth. The Tanos obtained the mineral by knocking it out of the rock with stone mauls, axes, and hammers, many of which have been found in this locality. They also dug and burrowed, but their excavations were made at random, and went but little beneath the surface. Still less did the Spaniards compel the Indians to "mine" the turquoise for

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the village to have been a Tanos village, just as to-day Santo Domingo is counted among the Queres, although there are many Tanos among them, and Isleta among the Tiguas, although a good portion are Queres from Laguna.

[1] *Memoria del Descubrimiento que Gaspar Castaño de Sosa, hiso en el Nuevo Mexico*, Doc. de Indias, vol. xv. p. 248.

[2] *Diario de la Retirada de Otermin*, fol. 28.

[3] *Autos de Guerra de la segunda Entrada*, fol. 138: "Y halle despoblado y se conservan algunos aposentos y paredes de los quarteles y viuyendas de el y asimismo se hallan las paredes y cañon de la Yglesia buenas con las de el conuto."

[4] Some exceptionally handsome ones are in possession of my friend, Abraham Spiegelberg, in Santa Fé.

them. Very little attention was paid by the whites to the green and blue stones, the latter of which are comparatively rare; since they regarded the New Mexican Callaite as of a base quality, and therefore as of no commercial value.[1] Nevertheless, the turquoises of the Cerrillos were quite a resource for the Tanos, so far as aboriginal commerce went.

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[1] This was already noticed by the members of Coronado's expedition. *Relacion del Suceso de la Jornada*, p. 320. It is strange that none of the chroniclers of that journey mention the turquoise locality at Cerrillos. Neither does Espejo, who visited the Tanos. Castaño (*Memoria*, p. 248) speaks of the mineral (ores) found there by some of his men: "Truxo metales mui buenos, al parecer." Oñate also is silent, or at least makes no account of the green stones. In the documents of 1636, concerning the violent strife then going on between Governor Martinez de Baeza and the Franciscan priests in New Mexico, the latter accuse him of collecting tribute in an abusive manner; but they mention only piñon nuts, hides, and cotton mantles. Fray Pedro Zambrano, *Carta al Virey*, MS. Fray Antonio de Ybargaray, *Carta al Virey*, MS.: "Porque desde que entro en el gouierno solamte a atendido á su aprouechamiento, y este con gran exceso y daño de todas estas prouinas en el trabajo excesivo que a dado á estos pobres resien combertidos en mucha cantidad de mantas, y paramentos que a mandado hazer y pintar, y assimismo cantidad de camiças que les a echo buscar y resgatar, y cantidad de Piñones que les a echo a carrear." *Carta al Virey, del Custodio y de los Definidores del Nuevo Mexico*, MS. Fray Andres Suarez, *Carta á su Magestad*, Nambé, October 23d, 1647, MS. In none of these severe accusations against the governors is the mining of turquoises or of any other mineral mentioned; neither do the Indians themselves speak of it in their depositions of the years 1680, and 1681. *Diario de la Retirada*, fol. 32. *Interrogatorios de varios Indios de los Pueblos Alzados*, 1681, MS. Otermin, *Ynterrogatorio de Preguntas*, 1681, MS. Also *Declaracion de vn Indio Picuri*, 1683, MS. In 1626, Fray Gerónimo de Zárate Salmeron wrote about the turquoises of New Mexico, *Relaciones de todas las cosas que en el Nuevo México se han visto y sabido*, MS., par. 34: "Y minas de Chalchihuites que los Yndios benefician desde su gentilidad, que para ellos son Diamantes y piedras preciosas. De todo esto se rien los Españoles que allá están." The term "minas," in older Spanish, is used to designate the localities where minerals are found, equivalent to the German "Fundorte," and not *worked* mines, in the English sense of the term, or the French. This has caused a misunderstanding which misled the majority of prospectors. Vetancurt, *Crónica*, p. 286: "Hay minas de plata, de cobre, de azabache, de piedra imaná, y una de talco trasparente á modo de yeso, que lo sacan como tablas, y adornan las ventanas con ellas como si fueran de cristál." No mention is made of turquoises. Benavides, *Memorial*, 1630, p. 44: "Toda esta gente [the Pueblos] . . . con gargantillas y oregeras de turquesas, que tienen minas dellas, y las labran, aunque imperfectamente."

Returning now to the Cienega, and following the course of the Santa Fé River westward through the pass of the Bocas, we emerge from that gorge at the so called Bajada, or "descent."[1] The Bocas themselves offer hardly anything of archæological interest except some rock carvings of which it is impossible to say whether they are due to Pueblo Indians or to nomads. It is a narrow cañon, picturesque in places, with little spots of fertile soil, occasional cottonwood trees, and usually permanent water. At the Bajada the river sinks nearly always during early summer, and a plateau five miles wide spreads out to the west, to within a mile of the banks of the Rio Grande at Peña Blanca; northwards it extends not more than four miles, being encompassed on the north and east by a high and very abrupt mesa, from which rises the cone of the Tetilla peak. At the Bajada the slope of this mesa is almost vertical, and about five hundred feet high. Where the stream makes its southwestern angle, cretaceous rocks are exposed in snow-white strata. Above them tower lava and trap, black, craggy, and chaotic. To the Indian this was and still is an important locality, for white alabaster is found there; a mineral that serves for whitewashing the rooms of his pueblo and for the manufacture of his fetiches. We need not be surprised therefore to meet opposite the little settlement of La Bajada, on the declivity sloping from the west towards the bed of the Santa Fé River, the ruins of the old pueblo of Tze-nat-ay, as the Tanos call it to-day.

Low mounds, in places hardly distinguishable, a faint depression indicating an estufa, and the usual fragments of stone implements, obsidian, and earthenware, are all that is left on the surface. The walls were of volcanic rocks, rudely broken, and of rubble. It was a village of medium size, probably sheltering five hundred people. Its situation was good both for safety and cultivation; but timber was rather distant, and, although the soil is fertile, it is entirely dependent upon the rain for moisture. Tze-nat-ay commanded a wide view, and from the tops of the many-storied houses its inmates could scan the plateau for fully twenty square miles. At the mouth of the cañon, from the bed of the river meandering to the northwest along the base of the mesa, no enemy could approach unnoticed in the daytime. But it was also a dreary spot. In summer the hot glare of the sun was reflected from the white level, and when the southeast wind arose clouds of sand and dust enveloped the village.

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[1] The altitude of the Bajada is 5,515 feet, 500 feet lower than the Cieneguilla on the eastern base of the high mesa of the Tetilla, nine miles to the east, and 345 feet above Peña Blanca, six miles to the west, on the banks of the Rio Grande.

Tze-nat-ay is not the only ruin on the banks of the Rio de Santa Fé. Between the Bajada and the outlet of the stream opposite Cochiti, not less than three others are found along its course. One lies about equidistant from the two points named, and was a communal pueblo like Tze-nat-ay; but the houses were smaller, and I saw only a single estufa.

At the second ruin I did not notice any estufa. The pottery is the same in both, and so are the other objects. Tze-nat-ay appears to have been quite a large pueblo, and it was probably three, if not four, stories high.

Neither the Tanos nor the Queres of Cochiti could give me any information concerning the smaller pueblo. Neither of the two tribes claimed it. Tze-nat-ay, the Tanos say, was one of their ancient villages; but whether it was abandoned previous to the sixteenth century, I cannot determine. It is also designated in Spanish as "El Pueblo Quemado," the village that was burned, and such a Tanos village appears in the list furnished by Oñate in the year

1598.[1] The "Bocas de Senetu" are also mentioned in 1695, though not the ruins.[2]

The other ruins are situated near the mouth of the Santa Fé River, and belong to a different type of architecture. I reserve a more detailed notice of them for another place, and return to the ruins south of Santa Fé.

The ruin at Peñas Negras, eight miles south-southeast of the capital of New Mexico, I have only seen, not explored. It seemed to me to be that of a small communal pueblo. A considerable collection of relics from this locality was made by a Mr. Cole, and is at present in possession of the Historical Society of Santa Fé. Incidentally I learned that the Tehuas (or Tanos) claim the pueblo at Peñas Negras as belonging to their ancestors. It lies on an eminence west of the Pecos road, near the edge of the forest, with a fair view to the southwest, and there is a spring in its vicinity.

At the railroad station of Lamy, where the branch road to Santa Fé turns off from the main line of the Atchison, Topeka, and Santa Fé, I noticed, in the summer of 1882, little mounds covered with potsherds, which recalled to me forcibly ruins of the so called "small houses," of which I have treated more extensively in a former report to the Institute.[3] The fragments of pottery are clearly distinguishable from such as are found in the Tanos ruins.

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[1] *Obediencia de San Juan Baptista*, p. 114: "La Prouincia de los Cheres con los Pueblos de Castixes, llamados Sant Philepe y de Comitre, y el Pueblo de Santo Domingo y Alipoti, Chochiti; y el de la Cienega de Carabajal, y el de Sant Marcos, Sant Chripstobal, Santa Ana, Ojana, Quipana, el del Puerito y el Pueblo Quemado." The name of Pueblo Quemado is given to several ruins in New Mexico; but the one mentioned in the above document lay in or near the Queres district, or in that of the Tanos.

[2] *Merced de la Bajada*, 1695, MS.: "Y desde la casa del Ojito para el oriente asta las Bocas que llaman de Senetu."

[3] *Fifth Annual Report*, p. 60: "A second architectural type even more prevalent is that of detached family dwellings, either isolated or in groups forming

The mounds lie on the north side of the railroad track, and are fast disappearing. It is useless to speculate upon their origin, but they certainly antedate the time when the sedentary Indians of this district adopted the large house type of architecture.[1] They cannot have been mere summer dwellings of Pueblo Indians, for the pottery is different from that found in other ruins; or, rather, a certain kind of pottery which always accompanies the remains of Tanos villages is never found in connection with the small houses. We cannot admit that the sedentary native had a particular earthenware for summer use and another for the cold season.[2]

The fragments of earthenware found at Lamy, I have described as follows: "It is harder and better, white, gray, or red, with simple but not badly executed geometrical figures painted black, and, so far as I could detect, without gloss. This pottery is decidedly superior in quality and in finish to the glossy kind. Along with it the corrugated and indented ware abounds." The larger ruins in Central New Mexico, and especially those belonging to historic times, are generally covered with a profusion of potsherds, "coarsely painted, the decorations being glossy; some of it is undecorated and plain black."[3] Southwestern pottery shows two kinds of gloss or glaze; one is thin, and displays a fair polish; the other, the kind exclusively applied on decorative lines or figures, looks like a coarse varnish laid on very thick, so as frequently to overrun the outlines. The latter is the variety that I have always found wanting in the small house ruins,

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villages." Also, pages 61, 62. I first gave an account of this class of buildings in the *Bulletin of the Archæological Institute of America*, 1883 (p. 28), and refer to those publications for a description of them.

[1] Compare on this point my Report in the *Fifth Annual Report*, 1884, p. 78; also, *Bulletin*, 1883, p. 31.

[2] *Bulletin*, p. 30 *et seq.*

[3] Ibid., p. 29.

whereas at the Pu-yé in the Tanos country, and in the Queres, Tigua, and Piros pueblos, it is abundant.[1] Corrugated and indented ware is rarer among the large type pueblos south of Santa Fé than farther north and in the small houses; and while the small house pottery also occurs among ruins of the communal type, it is not abundant there.[2]

Ruins of two other pueblos lie east and southeast of Lamy, at some distance in the mountains. I have not seen them, and therefore speak from hearsay only. The gentleman who mentioned and described them to me inquired about them of a well known Indian of San Ildefonso, who informed him that they were respectively called Uap-i-ge and Dyap-i-ge, and are those of very ancient Tanos villages.

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[1] That is to say, in the more recent ruins, principally those of the past three centuries. Further on, I shall refer to an old Queres pueblo, where the potsherds all belong to the painted small-house variety.

[2] Still, in the ruins of Colorado, Utah, and Northwestern New Mexico, it is the only painted kind found. On the Rio de las Animas, and in the Cañon de Chaca, the coarsely glazed variety does not seem to exist. Compare the plates in Simpson, *Journal of a Military Reconnaissance from Santa Fé, New Mexico, to the Navajo Country, in 1849* (Senate Executive Document, No. 64, 1850). The red painted pottery with black decorative lines, and the white or gray also decorated with black lines, both with a fair gloss, were found in the ruins of the Chaca Cañon and of the Navajo country in general; and along with it, plain, corrugated, and indented ware. Also in the Tze-yi or Cañon de Chelly (*Illustrated Catalogue of the Collections obtained from the Indians of New Mexico and Arizona in 1879*, pp. 419 *et seq.*). I refer with particular pleasure to the Monograph of Mr. W. H. Holmes, *Pottery of the Ancient Pueblos* (Bureau of Ethnology Report of 1882 and 1883, pp. 308 to the end). This close student of Southwestern pottery says very justly (p. 321), in regard to the pottery found on the Rio Colorado Chiquito of Arizona: "Beside the *archaic white ware and its closely associated red ware*," (the Italics are mine,) other associations of colors are also found in the older ruins, but never the coarsely glazed kind; whereas the latter is frequently mentioned as being made by the Pueblos in the sixteenth century, at least by some of the Pueblos. Castañeda, *Cibola*, p. 138. When Francisco de Barrionuevo visited Yuge-uingge in 1541, he found "de la vaisselle de terre très-belle, bien vernie et avec beaucoup d'ornements" (p. 185). "Dans beaucoup de villages on trouva des morceaux de minéral d'argent qui servaient aux naturels pour vernisser et pour peindre les vases de *terre*." I call attention to this sentence only to warn students against using it in their researches. Ternaux-Compans has inserted the words "vases de *terre*" without the slightest foundation. He claims that the Spanish original is illegible; but when Dr. Moore, the Superintendent of the Lenox Library, showed me the original, and the word which Ternaux could not decipher, I found it as plainly legible as print. It reads "para pintar los Rrostros." Any one slightly acquainted with Spanish knows that "rostro" means the face; consequently the blue or green silver ore was used, not to make a glaze, but simply to paint the faces, as it is sometimes

Lamy lies at the mouth of a narrow pass through which the railroad emerges from the Pecos valley. The two ruins last mentioned seem therefore to have been on the border of the Tanos range, and on the confines of that of the Pecos Indians. South of Lamy, however, spreads the Galisteo basin, which has been always considered as the proper home of the Tanos tribe until the past century.

The elevation of Lamy is 6,458 feet, that of Galisteo 6,117, so that the rise from Santa Fé in a distance of twenty-two miles is almost nine hundred feet. In that direction, due south, the Tanos pueblos extend as far as six miles below Galisteo, to the southern border of the basin.

Two ridges parallel to each other, surmounted by shaggy crests called "crestones," traverse the Galisteo plain from east to west; one of them lies six miles south of Lamy, the other on the southern limits of the basin. It is a bleak and arid level, just as Espejo has described it. The northern base of the northern creston is hugged by a dangerous torrent, the Arroyo de los Angeles, frequently, and more appropriately, called the Arroyo del Infierno. About a mile and a half from the modern Galisteo settlement, on the north bank of this treacherous dry creek, lie the ruins of the Tanos village called T'a-ge Uing-ge, and by the Spaniards Santa Cruz de Galisteo. What is the origin of the word

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by the Indians to-day. Gaspar Castaño de Sosa, *Memoria del Descubrimiento*, pp. 236 to 238) mentions in the first village which he visited, and which was either a Tanos or a Pecos pueblo, "Mucha loza bien vidriada." I have not yet been able to ascertain what the composition of this coarse glaze is. It appears to be a "lost art."

Galisteo, I am ignorant. It first appears as "Glisteo," in 1598.[1] The church and mission may have been in existence as early as 1617,[2] it is certain that they were in 1629.[3] When the Indian outbreak took place on the 10th of August, 1680, the Father Custodian of New Mexico, Fray Juan Bernal, resided at Galisteo, and he was one of the first priests killed by the Indians. With him perished Fray Juan Domingo de Vera; and in sight of the pueblo the Indians murdered Fray Manuel Tinoco, the priest of San Marcos, and Fray Fernando de Velasco, the missionary of Pecos. Both were coming to Galisteo from opposite directions to inform their superior of the designs of the natives.[4] Several Spaniards also suffered death; as Galisteo was an "Alcaldía mayor," or one of the several judicial districts into which New Mexico was divided, and although strictly an Indian pueblo, the lieutenant of the "Alcalde mayor," Juan de Leyva, resided there with his family and a few other Spanish colonists.[1] After the Spaniards had been driven out of the country, the Tanos of Galisteo removed to the site of Santa Fé, whence they were expelled by Vargas. In 1706 Governor Cuerbo established the pueblo again, under the name of Nuestra Señora de los Remedios de Galisteo. It remained a very inconsiderable Indian village until the latter part of the past century, when the Tanos, decimated by the persistent hostilities of the Comanches and by small-pox,[2] removed to Santo Domingo, where their descendants still live, preserving the language of their ancestors and in part their tribal autonomy.[3]

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[1] *Discurso de las Jornadas*, p. 258: "Fuimos á Glisteo, que llamamos Santa Ana." Castaño (*Memoria*, p. 248) had christened it "San Lucas."

[2] In the *Cédula Real* of May 20, 1620, MS., the King says: "El Cabildo de Santa Fé del Nuevo México en carta que me escribió en 3 de Octubre del año pasado de 1617, refiere . . . que hay once Yglesias çundadas con pocos ministros." It may be that Galisteo, being near Santa Fé, was one of them.

[3] Benavides (*Memorial*, p. 24), says that the Tanos numbered four thousand, but that only a single convent had been established among them; this was the house occupied by the priests at Galisteo.

[4] There is a detailed account of the manner in which Fray Juan Bernal was killed, in a sermon delivered at the city of Mexico and printed there, but I have not the book to refer to. Otermin (*Diario del Sitio*, fol. 22) only says: "Que se han alzado los Indios Tanos, y Pecos, Cienega, y San Marcos, los quales se dice haber muerto al R. P. Custodio F. Juan Bernal, y á los Padres predicadores Fr. Fernando de Velasco, Fr. Manuel Tinoco, y Fr. Domingo de Vera con el Teniente de Alcalde mayor Juan de Leyva." But a Tanos Indian who was captured near San Marcos during the retreat to El Paso is more explicit in his declaration, saying (*Diario de la Retirada*, fol. 323): "Hizo que habian muerto en el dicho pueblo de Galisteo á los padres al Padre Custodio, al Pe Fr. Domingo de Vera, y en el campo á la vista del Pueblo á los Padres Fr. Manuel Tinoco, ministros guardianes de Pecos, y S. Marcos." That Father Velasco had been warned by one of the Pecos Indians, who offered to save his life, is told as follows by the Custodian Fray Salvador de San Antonio, and the other priests of New Mexico, *Protesta á Don Diego de Vargas*, December 18, 1693, MS.: "Dijo á su ministro el Padre Fray Fernando de Velasco; padre la gente se alza para matar á todos los Españoles, y religiosos; y asi, mira á donde quieres irte, que yo te daré mozetones para librarte, como de hecho lo hizo." This Indian who warned and attempted to save the priest was Juan Yé, afterwards

A plot of the ruins is given on Plate I. Figure 20. They are low, red mounds, but with walls protruding here and

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Gobernador of Pecos in 1694, and murdered by the Taos Indians for his fidelity to the Spaniards. It seems that Fray Velasco fled to Galisteo right into the jaws of death.

[1] The names are given in the *Diario del Sitio*, fol. 22: "El Teniente de Alcalde mayor Juan de Leiva, el capitan Jose Nieto, Nicolas de Leyva, y á todas las mugeres, y niños de sus familias." Further details are in the *Diario de la Retirada*, fol. 33.

[2] The Comanches continued to harass the inhabitants, and about 1748 surprised the men in the fields outside of the village, and killed eight of them. *Libro de Entierros de Nuestra Señora de Remedios de Galistéo*, MS. Another attack was made on December 3, 1751, but it was repulsed. Marqués de Altamira, *Dictamen*, 1752, MS. The establishment of the pueblo of Galisteo in 1706 is mentioned in *Testimonio de Diligencias sobre la Fundacion de Albuquerque, de Sta Maria de Grado, de Pujuaque y Galistéo*, 1712, MS. Ninety Indians were the original settlers; six years later it had 110; in 1748 there were fifty families. Villaseñor y Sanches, *Teatro Americano*, vol. ii. p. 420. Morfi (*Descripcion*, p. 98) mentions 52 in 1782. The Indians abandoned it between that year and 1794. It is neither mentioned in the *Certificaciones de las Misiones* of the latter year, nor in the *Relacion de las Misiones* of 1808.

[3] It is said that the Tanos maintain a separate tribal government within the pueblo.

there. I failed to discover the site of the church or of the convent. In 1680 Galisteo is stated to have had a "handsome" temple, that is, for New Mexico.[1] Its population may have amounted at one time to over one thousand souls.

East of Galisteo, on the borders of the basin, in a picturesque valley surrounded by woods and supplied with permanent water, stand the ruins of Yam-p'ham-ba or San Cristobal (Plate I. Fig. 22). It was inhabited until 1680, and formed a "visita" dependent upon the parish of Galisteo; and in that year it had eight hundred inhabitants. After the expulsion of the Spaniards, the Tanos of San Cristobal settled in the vicinity of Santa Cruz,[2] as already related. Most of their descendants are now among the Moquis.

On the other side of the Arroyo de San Cristobal, which runs at the foot of the gentle slope on which the pueblo stands, lies another group of ruins. The pueblo proper still shows many of its walls, and it is plain to see that they were generally 0.27 m. (11 inches) thick, and made of thin plates of sandstone. The second ruin, which lies a short distance southwest of the other, is reduced to compact mounds of earth. The stream has manifestly carried away a part of it, but it is not possible to determine whether this occurred recently or in olden times. The appearance of the mounds denotes long decay, and it may be that they are older than the historic San Cristobal. There are two estufas, while the village proper shows but one; but it is not certain whether this was the only one, as not all the estufas were round, and not all were subterraneous. Still the round form seems to have been the "archaic" one, where it was possible to excavate for the purpose. I suspect that the group of mounds southwest of the principal ruins are the remains of an older village, abandoned prior to the other.

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[1] Vetancurt, *Crónica*, p. 323.

[2] Could the hostile attitude of their neighbors the Pecos have caused the Tanos to forsake their old homes? Escalante says, *Carta al Padre Morfi*, par. 7: "Los Queres, Taos y Pecos, peleaban contra los Tehuas y Tanos." *Relacion Anónima*, p. 127: "Los Tanos, que cuando se sublevaron vivian en San Cristóbal y en San Lázaro, dos pueblos situados en la parte austral de la villa de Santa Fé despues por las hostilidades de los Apaches y de los Pecos y Queres se trasladaron y fundaron con los mismos nombres dos pueblos, tres leguas largas de San Juan." The number of inhabitants is from Vetancurt (*Crónica*, p. 323), who says it was a "visita" of Galisteo.

The church was built of the same material as the pueblo, thin plates of sandstone, but the walls were more substantial. In 1882 the rear part of it was still standing to the height of about four meters. It is a chapel only, measuring 16.0 by 7.4 meters (52½ by 24¼ feet). In front of it lies a churchyard, and other buildings seem to have been appended to it on the south. The main pueblo stands between the chapel and the more ruined vestiges on the south side of the arroyo, another indication that the latter were forsaken at an earlier date, perhaps before San Cristobal had been visited by the Spaniards. The first authentic visit by a Spaniard was made in 1690, by Gaspar Castaño de Sosa, who gave the village the name by which it still continues to be known.[1]

San Cristobal lies in what might be called a sheltered nook. There is little cultivable ground contiguous to it, but at a very short distance, on the edge of the Galisteo plain, there is tillable land that can also be irrigated. The site is not favorable for observation, but the heights surrounding it afford good lookouts. For defence the houses had to suffice, and there are traces of a double stone wall connecting several of the edifices. On the whole, the buildings seem to have been smaller than usual, and nowhere could I see indications of greater height than two stories. It has in fact the appearance of a pueblo of to-day; whereas the ruins on the south bank of the arroyo belong to the compact older pueblo type.

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[1] *Memoria del Descubrimiento*, p. 247 *et seq.*

Six miles west of Galisteo, on the eastern slopes of the picturesque Sierra del Real de Dolores and on the southern bank of the Arroyo del Chorro, stand the ruins of I-pe-re, or San Lazaro, another Tanos village, which was abandoned after the uprising in 1680 and never occupied again. The three historic pueblos of the Galisteo group thus stand in a line from east to west eleven miles long. The ground around San Lazaro is much broken. The ruin stands on bluffs that are not abrupt, and the arroyo winds around their base. The disposition of the buildings is similar to that at San Cristobal and traces of stone walls connecting them with each other are visible. It seems to have been smaller than either Galisteo or San Cristobal, and was built of stones. The houses were so disposed as partly to encompass an elliptical enclosure of stone built around a slight depression. The perimeter of the enclosure is about 140 meters (460 feet). Only two buildings appear to have been connected with it, and in the depression which the wall surrounds are still two circular sunken areas of small dimensions.

At San Cristobal there are also, in connection with some of the mounds, enclosures made of roughly piled stones. I can only suggest a probable object of these unusual structures. The Tanos possessed flocks, mostly sheep, and the enclosures may have served for keeping them in safety over night. Quite analogous enclosures of stones, usually reared against the steep acclivity of a mesa or other height, so as to require building only three sides, are made by shepherds in treeless districts. The stone enclosures at San Lazaro and San Cristobal may have been constructed for the same purpose. Both villages were very much exposed to attacks by the Apaches from the side of the plains as well as from the mountains west of the Galisteo basin.

On the southern border of the Galisteo basin there are three more ruins, lying in a line from east to west. I visited none of these, but the Tanos of Santo Domingo, who claim that they were villages of their tribe, gave me their names. The Pueblo Colorado was called Tze-man Tu-o; the Pueblo Blanco bore the name of Ka-ye Pu; the next was called Shé; and they are all within three to five miles south and southeast of the town of Galisteo. From descriptions by persons who have seen them frequently I gather that they belonged to the communal type, and were villages of reasonable size for Pueblos. I have seen some artificial objects purporting to have come from these ruins consisting of stone axes and coarsely glazed pottery.

The Galisteo plain is bordered on the west by the Sierra de Dolores; south of this mountain rises the Sierra de San Francisco; and a long and waterless valley, running from east to west, separates the two ranges. This arid cañada is partly covered with coniferous trees, though in most places it is grassy, and haunted by antelopes. A little beyond the entrance to it lies the "Pueblo Largo," called by the Tanos Hish-i, — a large ruin indicating a considerable village situated on both sides of a mountain torrent. The main portion of the ruins is to the north of the arroyo, and, as at San Cristobal, the water has washed it, chiefly on the south side, exposing some of the rooms. They are usually 2.8 to 3.5 m. long by 2.1 to 2.5 m. wide (average in feet, 9½ by 7); the walls are 0.25 m. (10 inches) thick, made of thin plates of sandstone. The village formed several quadrangles, and it may have accommodated fifteen hundred people, upon the supposition that both sides of the arroyo were occupied simultaneously. The southern ruins, however, show more and apparently longer decay than the northern, and it is not safe to assume for Hish-i any comparatively large population.

At least five estufas can be detected within the squares of large court-yards formed by the edifices. In the neighborhood of one of these estufas there is a very peculiar arrangement of ten stones, in three parallel lines. The stones are parallelopipeds, or prisms about 0.75 m. (34 inches) long by 0.30 to 0.40 wide, and 0.20 to 0.30 broad. Two thirds of their length is set in the ground so that only about 0.25 m. protrudes: they stand at quite regular intervals and two of them are connected by a row of smaller stones set on edge. Their proximity to an estufa renders the presence and arrangement of these slabs mysterious, but they resemble common headstones on graves. Still, I could not ascertain that anything had been discovered beneath one of them which has been excavated. Their shape is not artificial, but due to natural cleavage alone, as I satisfied myself by inspecting a rocky hill near by, where ledges of the same material crop out.

Whether the Pueblo Largo was occupied within historical times I am unable to answer. In 1630 Fray Alonzo de Benavides stated that the Tanos occupied five pueblos.[1] This number agrees with that of the historically known villages of the Tanos, provided San Marcos and the Cienega were inhabited by them, and not by the Queres. If, however, San Marcos and the Cienega belonged to the latter tribe, there would be room for Hish-i among the historical settlements.

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[1] *Memorial*, p. 24. He ascribes to the Tanos four thousand souls. I hold this estimate to be reasonable, although probably a little above the true number. Eight hundred inhabitants is a high average.

When the insurrection of 1680 broke out, these settlements occupied the eastern portion of the Tanos range. The comparatively arid basin of Galisteo was the latest home of that tribe. West of it, between the San Francisco and San Pedro Mountains in the east, and the great Sandia chain,[1] and separated by the last from the valley of the Rio Grande, several ruins are found, which the Tanos say are those of their former villages. Some of these may have been inhabited as late as the beginning of the seventeenth century.

South of the portion of the Atchison, Topeka, and Santa Fé Railroad that lies between the stations of Cerrillos and Wallace, a bleak expanse, neither valley nor plain, gradually rises towards the foot of the Sierra de Dolores and the Sierra de San Francisco.[2] At Golden, or Real de San Francisco, where the Arroyo del Tuerto emerges from a narrow mountain valley, and where gold washing has been carried on sporadically, two sites of former pueblos are pointed out. These are called El Tuerto and Valverde, and both lie within one mile to the north of Golden. The villages were small, and the Tanos of Santo Domingo gave me their names as Ka-po and Sem-po-ap-i. Barely distinguishable mounds indicate the sites, and I found neither pottery nor obsidian on them, only fragments of basalt and other rocks. Both these pueblos may have been inhabited in 1598, according to the list given to Oñate by the Indians at San Juan, on the 9th of September of that year.[3]

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[1] The respective altitude of these chains are, Dolores 8,827, the San Francisco and San Pedro about the same, while the Sandia rises to 10,609 feet.

[2] Cerrillos is 5,667 feet in height; Wallace, 5,246 feet.

[3] *Obediencia y Vasallaje de San Juan Baptista*, p. 114: "Y el de la Cienega de Carabajal, y el de Sant Marcos, Sant Chripstobal, Santa Ana, Ojana, Quipana, el del Puerto y el Pueblo quemado." But it may be that, instead of "Puerto," Tuerto was intended; or Puerto may have applied to the entrance of the Bocas at the Bajada. Further on, I shall refer to a singular passage in the *Memoria* of Castaño de Sosa, which may relate to these two villages.

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The same is true also of the ruins called O-jan-a and Ki-pan-na. I have not visited them; but they lie south of the settlement of Tejon, in the hilly country separating the Sandia chain from the San Francisco. That they were Tanos villages there can be no doubt, and the catalogue of pueblos which I have mentioned includes them. Still, this is no absolute proof that these four pueblos were occupied at the time of Oñate. The list was made at San Juan among the Tehuas, and they may have given the names of villages abandoned some time previous without their knowledge. Intercourse even between kindred tribes in ancient times was irregular, and frequently interrupted. Several pueblos might have been given up in one section of New Mexico without a neighboring stock hearing of it for a number of years afterwards.[1]

Whether the large ruin called El Tunque, three miles north of the Tejon, at the northeastern extremity of the Sandia chain, must be considered as that of a pre-historic settlement or not, is also a matter of doubt. That it was a Tanos village is well ascertained, and its proper name was Tung-ge, or Village of the Basket.[2] It lies on a gentle bare slope near the banks of a stream which in the mountains farther south is called Rio de San Pedro, lower down Uña de Gato, and here takes the name of Arroyo del Tunque. A little beyond the ruin the stream sinks and becomes a dry mountain torrent for twelve miles, to its mouth opposite the present pueblo of San Felipe. Tung-ge seems to have been the last Tanos village towards the west, in prehistoric times. It was also a very extensive pueblo, to be compared for size and plan with the large and extended villages of Se-pä-ue and Ho-ui-ri of the northern Tehua country. It formed a number of irregular squares, and sometimes two and three separate buildings constitute one side of a quadrangle. The population was therefore not as large as the area covered by the ruins might indicate. I was not able to find a single circular estufa. The walls were mostly of adobe, and had the usual thickness (0.30 m., or one foot). Rubble foundations are visible, but a portion of the ruins consists merely of low mounds. This is particularly the case in the north and east, or on the highest ground. In the western portions the interior of the first story is partly exposed, showing the roof or ceiling made in the usual pueblo fashion by round beams supporting rough splinters, and these in turn a layer of earth. The average of eighty-four rooms measured gave 3.4 by 3.2 meters (11 feet 2 inches by 10 feet 6 inches).

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[1] An instance of this kind is found in the report of Fray Marcos of Nizza about Marata. The fugitive Zuñi Indian whom he found among the Sobaypuris told him that the people of Marata (Makyat-a) were still holding their own; whereas it is amply proved that their pueblos were abandoned and in ruins in 1540.

[2] Tung is the Tehua word for basket or tray.

The buildings were two stories high in most places; but the existence of a third story is not impossible. Pottery is scattered about in profusion, and it shows no difference from that at Galisteo and other points of the Tanos country where the pueblo type of architecture was represented. I noticed a great deal of obsidian and basalt, fragmentary and complete arrow-heads of both materials, also stone axes, corn grinders, and a few stone chisels and knives; even a spade made of basalt was picked up at Tunque, and is now in my possession. I have not heard of metallic objects. The various objects indicate a primitive culture, one probably anterior to the coming of Europeans; but this is by no means sufficient evidence to justify the conclusion that the pueblo was not also inhabited during historic times.

The former fields of the pueblo can be traced along the

Arroyo del Tejon, and along the dry Arroyo de la Yuta, in places at a distance of two and three miles from the ruins. Little watchhouses of which only the foundations are visible indicate their location. These watchhouses, equivalent to the "summer ranchos" of the Indians of to-day, are usually quadrangular and of one room only; still I found one with two rooms and of an L shape. Their average size corresponds nearly to that of single rooms in a pueblo of the ancient pattern, with two exceptions. These two, being very small, may have been guardhouses merely, where the crops were watched in the daytime or at night, whereas the other may have sheltered entire families during summer.[1] The foundations are rubble, and the same kind of potsherds are scattered about as at the pueblo.

The Arroyo del Tejon has permanent water as far as these structures are found. I have not noticed any trace of ancient acequias; but there is no impossibility that such existed, and that the Tanos of Tunque cultivated by irrigation. Along the Arroyo de la Yuta the banks are too steep and the water flows ten to fifteen feet below the surrounding levels. But the soil is fertile, and at the present day the people of Tejon raise good crops with the aid of summer rains alone. For agricultural purposes the situation of Tung-ge was well chosen. Wood was not far off, and water always at hand, and from a military standpoint the location was not bad. The highest parts of the pueblo commanded a fair range of view in almost every direction.

I have been unable to find any notice of the pueblo of Tung-ge or Tunque in the older documents. It is mentioned in a petition of the year 1770 as an "ancient pueblo."[1] I doubt, therefore, if it was occupied at the time when the Spaniards first came.

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[1] Even to-day, people at the Tejon sleep out of doors in summer, as do most of the Pueblos while out on the ranchos. The house (or shanty) is only used for cooking, for sheltering the tools and household articles, and in case of rain or exceptionally cool weather.

Although there may be other ruins yet in the valleys east of the Sandia chain, I know of only one, that of the village at old San Pedro, south of the mining camp of that name. This pueblo is called by the Tanos "Pa-a-ko."

The narrow valley of the Upper San Pedro resembles somewhat that of the Pecos, but the stream is not as large, and the scenery decidedly grander. The forests descend into the bottom, and the peaks of the San Pedro range, covered with beautiful pines, rise at a short distance in the east. In the west, the slopes of the Sandia chain sweep upwards like an enormous slanting roof terminated by a long shaggy crest. There is not much space for cultivation, yet enough for the inhabitants of a good-sized pueblo. The ruins lie on the west bank, and almost at the edge of the woods. They show considerable decay. The walls appear to have been of rubble. Pottery and other objects similar to those of the other Tanos villages lie on the surface.

It was a village of the more compact type, which may be due to the nature of the ground on which it was built and to the lack of space. The mounds are high enough to admit the supposition that the buildings were over two stories in height, at least in some places. Three circular estufas are plainly visible, and three enclosures like those noticed at San Cristobal and San Lazaro. These enclosures were without doubt made for the purpose of confining flocks, and if they are coeval with the pueblo, and not subsequent additions, Paako belongs to the category of historic pueblos. But

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[1] The *Peticion* of the authorities of Santo Domingo and San Felipe jointly for a tract of land bounded in the east, "por el oriente con un pueblo antiguo llamado el Pueblo de Tunque," MS., September 20, 1770.

I was unable to investigate, while in that vicinity, whether shepherds may not have reared these stone enclosures in modern times. When, on the 12th of October, 1598, Juan de Oñate received the submission of the Pueblos lying along the western border of the Salines of the Manzano, Paako is mentioned as being among them.[1] This is significant, though not conclusive. In 1626, Fray Gerónimo de Zárate-Salmeron, in speaking of the murder of Fray Juan de Santa Maria in 1581, at some place east of the Sierra de Sandia and three days' journey south of Galisteo, attributes the deed to "the Tigua Indians of the pueblo that now is called San Pablo."[2] Zárate's commentator, the Jesuit José Amando Niel, changes that name into "San Pedro."[3] I infer, therefore, that there was an inhabited pueblo near the place where Fray Santa Maria perished, which place must have been in the vicinity of the "old" San Pedro of to-day.[4] Niel may have been right in changing the name, or the copyist of Zárate's manuscript may have made a mistake.[5]

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[1] *Obediencia y Vasallaje a su Magestad por los Indios del Pueblo de Acolocu*, October 12, 1598 (Doc. de Indias, vol. xvi. p. 118). Four villages are mentioned: Paako, Cuzayá, Junétre, and Acolocú. If the first was the one at San Pedro, the other three may have been the Tigua pueblos "Cuar-ay," "Ta-ji-que," and "Chil-i-li."

[2] *Relaciones de todas las cosas que en el Nuevo Mexico se han visto y sabido*, 1626, MS., par. 7: "Y salió detras de la Sierra de Puaray, para atravesas por las Salinas, y de alli cortar derecho al paso del Rio del Norte, 100 leguas mas acá del Nuevo México; más no llegó á colmo su buen intento. Por que al tercero dia que se despidió de sus compañeros hermanos llegando á sestear debajo de un árbol, los Indios Tiguas del pueblo que ahora se llama Sn Pablo lo mataron, y quemaron sus huesos."

[3] *Apuntamientos que sobre el terreno hizo, etc.*, written in 1729 (MS.). Niel is very unreliable in everything touching upon New Mexico, but he knew Sonora, part of Chihuahua, and California.

[4] Three days' journey south of Galisteo brought the monk, travelling on foot, to San Pedro, or between San Pedro and Chilili.

[5] An error in copying is quite likely. The copy of Zárate's MS. in Mexico contains glaring blunders of that sort. For instance, "el Capitan Nemorcete," instead of "De Morlete, &ca."

The earlier testimony indicates that the ruin just described and called by the Tanos Paako is that of a village inhabited at least as late as 1626, which assumption is not negatived by the presence of the stone enclosures in question.

The documents referred to above make of Paako a village of the Tiguas. My Tanos informant at Santo Domingo declared that it was a Tanos pueblo. Which is right? It is a case similar to that of San Marcos and Cienega. Paako lies at the extreme southern limits of the Tanos range, and its position in relation to the Tigua settlements of Chil-i-li and Ta-ji-que is analogous to that of the pueblos of San Marcos, Cienega, and Bajada in reference to the Queres towns of Santo Domingo and Cochiti. I incline, however, to the belief that it belonged to the Tanos. A high ridge, densely wooded, the Sierra de Carnué, separated it from the nearest Tigua pueblo in the south, Chilili. The distance in a straight line is at least twenty-three miles, a long day's journey, owing to the intervening mountains. From San Pedro to the nearest Tanos villages in the north, at Golden, was only a few hours' travel.[1] I believe, therefore, that my Tanos informant is right, and that Paako was a settlement of his own people, which was abandoned for reasons as yet unknown at some time between 1626 and the great uprising in 1680. That it was no longer occupied in that year seems certain.[2]

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[1] The proximity of a pueblo of one stock to one of another linguistic group, and its greater distance from the nearest kindred village, however, is not impossible. Cia, a Queres village, is only five miles from Jemez, while a greater distance separates it from Santa Ana, another Queres village. Sandia, a Tigua pueblo, lies only thirteen miles from San Felipe, while at least thirty miles separate it from the next Tigua town, Isleta. But in ancient times, when the stocks were more on the defensive towards each other, such cases hardly ever occurred. Acoma, however, is one, being nearer to the Zuñis than to its own people at Cia; but Acoma was impregnable to Indians.

[2] It was abandoned even previous to 1670. In that year began the emigra

There is another ruin, smaller and more compact, a few hundred meters south of the one described; and on the opposite bank of the San Pedro there are also traces of buildings, but I had not time to examine either. With the notice above given of the principal ruin of San Pedro, my sketch of the Tanos country and its antiquities must terminate, although it is incomplete. There are other ancient vestiges which I have not touched upon. Sacrificial caves are spoken of in the vicinity of Cerrillos, and I have also heard of grottos showing traces of having been formerly inhabited. Documents of the year 1763 mention a ruin situated to the west of Carnué in the mountains.[1]

So far all the pueblo ruins scattered over the Tanos country[2] may be considered as those of villages built and inhabited by that tribe, whether their abandonment antedated the Spanish occupation of New Mexico or not. If we consider Tung-ge, the four villages south of Galisteo, the ruins near Lamy, at Peñas Negras, on the Arroyo Hondo, and at the Bajada, as pre-historic, it would seem that the Tanos had, in times prior to the middle of the sixteenth century, receded from the eastern, southeastern, and western boundaries of their range, and clustered about the basin of Galisteo and the Cerrillos, with Ojana, Kipana, and Paako, as isolated outposts in secure mountain fastnesses. This concentration was certainly a slow and gradual process, and the same causes have not produced it everywhere. The tendency of tribal society being segregation and isolation of local groups, it was natural for the Tanos to recede from their kindred, the Tehuas, in course of time. In the west, the proximity of the

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tion of the Piros and Tiguas from the Salines; and Paako is not mentioned among the villages that were abandoned after that date.

[1] *Real Posecion de Sn Miguel de Laredo*, 1763, MS.

[2] Under the term "pueblo ruins," I do not include here the small-house type of buildings found at Lamy and described in this chapter.

Queres had something to do with the concentration of the Tanos upon San Marcos and Cienega. Unfortunately, we have no traditional information upon these points. It is different in regard to the southeast. I heard while at Cochiti a folk-tale current among the Indians of Santo Domingo, which may throw light upon the past of the ruined pueblos lying on the southern border of the Galisteo plain, those called to-day Pueblo Colorado, Pueblo Blanco, Pueblo Shé, and Pueblo Largo. The substance of this tradition is as follows.

A long time ago, and before the Spaniards came to New Mexico, some wild tribe from the plains made a sudden irruption into the valley of the Rio Grande. They were called the Kirauash, and they seriously threatened Santo Domingo, or (as it was then called) Gi-pu-y.[1] Among the people of that village were wicked sorcerers, who entered into negotiations with the Kirauash for the purpose of delivering the pueblo into their hands. Some of the men of Santo Domingo, however, began to suspect their doings, and one night, when the principal men of the pueblo had gathered in council at an estufa, they noticed that one of the wizards stole out of the village. This looked very suspicious, for the Kirauash were in the neighborhood, and it was dangerous to stray from the houses. So they followed the sorcerer, and soon heard him exchange signals with the savages. Thereupon one of the men of Santo Domingo bade his comrades wound him slightly with their arrows, so as to cause his blood to flow, and then leave him on the ground as if he was dead, while they concealed themselves near by. Soon a prairie wolf approached, sniffing and barking, and, as he smelt the blood, began to talk like a man, but in an unknown tongue. Cautiously the animal drew nearer and nearer until he touched the body, licked the blood from its wounds, and finally grasped it with its fangs. Thereupon those in concealment seized him and held him fast, calling out to their companions, who rushed up at once. The wolf was tied, gagged, carried to the pueblo, and down into the estufa, where the council was still in session. There the wolf was laid on the floor and untied; he then sat up, dog-fashion, and gazed stolidly into the fire. Only when the incantations began for breaking the charm by means of which men can change themselves into animals did he show signs of uneasiness. A roll of mountain tobacco was forced between his teeth, and at the first puffs the wolf vanished and a warrior of the Kirauash stood in its place.[1] Then the whole plot was revealed; some of the traitors were taken and punished, others had already fled. The savages, seeing their plan frustrated, made a desperate attack upon the neighboring village of Cochiti, which was repulsed. Enraged at their failure, they withdrew toward the plains. Their retreat carried them past the most southerly pueblos of the Tanos, which they were able to surprise and utterly destroy.

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[1] The old pueblo of Guipuy lay on the banks of the Galisteo torrent a short distance east of Wallace, and was inhabited in 1598. Eighty years afterwards Santo Domingo stood on the banks of the Rio Grande, Guipuy having been wrecked by a flood.

This piece of Indian folk-lore, which I give with the reservation elsewhere expressed, appears genuine; but there are usually several versions of one story. The source, however, from which I obtained this is one which I have learned to respect and to trust. Some weight attaches to it from its resemblance to a statement of Coronado's chronicler, Pedro de Castañeda. Speaking of the pueblo of Tshi-quit-e or Pecos (Cicuiq) and of the villages lying between the Pecos valley and the Rio Grande, he expresses himself in the following manner: —

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[1] This is a truly Indian tale, as transformation into animals at the will of one's self as well as of others is one of the chief faculties ascribed to sorcerers. The Navajos, formerly at least, made complete wolf's costumes and wore them occasionally on nocturnal scouts and raids.

"Between Cicuyé and the province of Quirix [the Queres] is a small village very well fortified, which the Spaniards have called Ximera, and another one in appearance very large, but which is almost completely abandoned. A single quarter of it is still inhabited; the rest appears to have been destroyed by violence. That place was called Silos, on account of the number of subterraneous rooms [probably estufas] that were found there.

"Farther on, there was another large but totally ruined village, in the courtyards of which we found a considerable number of stone balls of the size of a leather pouch containing one arroba [twenty-five pounds]. It appeared as if they had been thrown by machinery, and had served to destroy the village. All we could learn was, that five or six years previous there had appeared in this province a very numerous nation called the Teyas, who had taken and wrecked all the villages. These strangers had also besieged Cicuyé without succeeding in taking it. Before they left the country, they made a treaty of alliance with the inhabitants. It seems that they were very powerful, and had siege engines. The Indians did not know whence they had come, and only believed that they had arrived from the direction of the north. They call this nation Teyas, that is to say, valiant men, in the same manner as the Mexicans called themselves Chichimecas or braves. The Teyas whom we met later on were well known to the inhabitants of Cicuyé."[1]

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[1] *Cibola*, p. 179. He adds: "Ils viennent même hiverner sous les murs de ces villages; mais les habitants n'osent pas les y laisser entrer car ce sont des gens auxquels on ne peut pas se fier." This implies that they were

The military engines which Castañeda attributes to a tribe of nomadic Indians from the plains must be regarded as purely imaginary. I will quote his description of these Teyas, whom he afterwards met on the steppes of North-eastern and Eastern New Mexico: —

"There are in these plains, as I have stated in the first part, a small number of roving Indians, who hunt the bison and tan the hides, which they sell in the villages. In the winter they come in bands to the villages that are nearest; some to Cicuyé, others to Quivira or close to Florida. These natives are called Querechos and Teyas. . . . These nomadic Indians are braver than those of the villages; they are taller and more warlike; they live in tents like the Arabs, and have large troops of dogs which carry their baggage. . . . These Indians eat raw meat and drink blood, but they do not touch human flesh."[1]

Coronado says of the Teyas: "They have their faces and bodies covered with designs, are very tall and well formed, and eat meat raw like the Querechos, and like them they live and travel with the cows [buffaloes]."[2] I think that Castañeda attributes to the Teyas an incursion into Central New Mexico which was really made by another tribe from the plains, the Querechos or Apaches.[3] Ever since the Pueblos have been known, and long before, the Apaches have been the scourge of the sedentary Indians, and they were superseded by the Comanches only in the beginning of the past century. Between Querechos and Kirauash there is quite a similarity in sound. At all events, Castañeda refers to the

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really the Teyas of the plains. I believe, notwithstanding, for reasons which will be given further on, that he meant the Querechos or Apaches, and not the Teyas.

[1] Ibid., p. 189 *et seq.*

[2] *Carta al Emperador Carlos V.* (Doc. de Indias, tom. iii. p. 363).

[3] For identification of the Querechos with the Apaches, see Part I. of this Report, p. 179.

destruction of several Tanos villages by Indians from the plains, and in this his statements resemble the folk-tale which I have related.

The name "Tanos" is not mentioned by Castañeda; but the pueblos lying between Pecos and the Rio Grande must have belonged to that tribe. Besides the three spoken of above, "seven more are to be found between the Sierra Nevada and the road; there is one subject to Pecos which was partly destroyed by the nation of which I have just spoken."[1]

By "the road" he means the route taken by Coronado's force in 1541, when they marched from Bernalillo, or Tiguex, to Pecos, on their way to the plains. The ten villages mentioned by Castañeda must therefore have been situated in the following order: three along the route, and seven to the north of it; for the "Sierra Nevada," or Snowy Mountain, was the Sierra de Santa Fé, which is the highest one in sight, and the only one that in April and May sometimes deserves the appellation of Sierra Nevada. As seen from Tunque, from Galisteo, or from Pecos, the Santa Fé chain stands in the north.

Another document, written in New Mexico in the autumn of 1541, before Coronado's return from Quivira, states that "from the province and river of Tiguex in four days' journey they met with four pueblos: the first had thirty houses; the second is a large and good village destroyed in their wars; the third had about thirty-five houses occupied. These three are after the fashion of those of the river in every respect: the fourth is a large village, situated among mountains, and is named Cicuiq."[2]

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[1] *Cibola*, p. 179. On page 182, in enumerating all the pueblos which he knew, he says: "Dans les montagnes neigeuses, Seipi, Ximena, trois."

[2] *Relacion Postrera de Sivola* (MS.): "Desde la provincia y Rio de Tiguex á cuatro jornadas toparon quatro pueblos; el primero tenia treinta casas; el segundo es buen pueblo grande, destruido de sus guerras; tenia hasta treinta y cinco casas pobladas el tercero; hasta estos tres son de la manera de los del rio en todo;

It will be noticed that this narrative confirms that of Castañeda in the principal points, the number of villages which the Spaniards touched on their route, and their condition, except that Castañeda makes the ruined pueblo the last, that is, the one nearest to the Rio Grande, while the other authority calls it the second after leaving Pecos.

I have not found anything more explicit in other documents relative to Coronado's expedition. The above data are hardly precise enough to establish his line of march across the Tanos country. A gentleman whose long experience in New Mexico and intimate acquaintance with its topography gives great weight to his opinions, Mr. R. B. Willison, C. E., of Santa Fé, has suggested that Coronado may have taken the following route: from Bernalillo to Tunque possibly by way of the "Plazitas," in which case he would have diverged from the Rio Grande and remained out of sight of the Queres village of San Felipe; from Tunque to San Lazaro around the northern base of the Sierra de Dolores; from San Lazaro to the old pueblo of Galisteo; and from the pueblo of Galisteo to Pecos, passing three miles north of the pueblo of San Cristobal.

This route is indicated by old Indian trails, which make his suggestion quite plausible. If true, the following conclusions might be drawn: — 1. That the pueblo of Tung-ge was in ruins in 1541, having been abandoned a few years previous to that date in consequence of an attack by nomadic Indians from the plains. 2. That the pueblo of San Lazaro had also suffered from the same source. 3. That the pueblo of Galis-

el quarto es un pueblo grande, el cual está entre unos montes llamasel Cicuic." Mota-Padilla (*Historia de la Nueva Galicia*, chap. xxxiii. p. 164) also mentions "Zitos por los muchos que tenian en que guardaban maiz; el otro se llama Jimena, y otro Coquite, y todos se mantuvieron fortificados, sin permitir si quiera que se les hablase." He was able to consult some papers left by Don Pedro de Tobar, one of Coronado's lieutenants.

teo, or Tage-uingge, was at that time only a small village, and was called by the Spaniards "Ximera."[1]

To identify the seven villages "between the road and the Sierra Nevada" is more than I can do, nor are we authorized to conclude that they were all inhabited. The Indian indicates and names the *sites* of his pueblos, irrespective of whether they are still occupied or not. To find out which are the inhabited ones he must be specially interrogated, which the Spaniards were unable to do, owing to lack of time and ignorance of the language. Taking the well known sites of Tanos pueblos north of the route followed by Coronado, it is easy to pick out seven, some of which, like San Marcos and Cienega, were undoubtedly inhabited in 1541, while the others were probably in ruins.

No mention is made of any pueblos south of the route. San Cristobal the Spaniards could not see from the trail, still less the four villages on the southern border of the Galisteo plain. The village of Paako lay far to the south; so did Ojana, Kipana, and the pueblos near Golden. To the north the country is open, while to the south rugged mountains arise in close proximity, producing the effect of an uninhabited wilderness.

It appears at least plausible that the withdrawal of the Tanos from the southeastern confines of their original range was due to an irruption of nomadic Indians, which happened but a short time previous to the arrival of Coronado in New Mexico, possibly between the years 1530 and 1540.

Of the pueblos south of the route, apart from the four probably destroyed by the Teyas, I hold that Paako, or old San Pedro, remained inhabited until after the first half of the seventeenth century. It is also likely that Ojana and Kipana were occupied at least until 1700. In regard to the pueblos near Golden, the Tuerto and Valverde, I will refer to a passage in the journal of Gaspar Castaño de Sosa, of the year 1591. Castaño had established his headquarters at a village which he called Santo Domingo, situated on the left (east) bank of the Rio Grande; and while it is certain that its inhabitants belonged to the Queres, it is just as likely to have been the former pueblo of San Felipe as Guipuy, or old Santo Domingo. From one or the other of these the Indians guided Castaño on an excursion into the mountains where he "found two villages abandoned but very few days previously on account of war, as the Indians who were with us gave us to understand by signs; and we saw clearly that it was so, from the many dead bodies. In these villages were much maize and stores of beans."[1]

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[1] Ximera, although the Spaniards gave that name to the pueblo, may have been a Tehua or a Pecos word misunderstood, and therefore incorrectly reported.

The mountains Castaño visited on this excursion can only have been those of the Tanos country. The two villages close together were therefore the two pueblos at Golden. They are the first ones which he would have met coming from Wallace or from the present Santo Domingo, and also the first ones on his route from old San Felipe into the mountains, as the pueblo of Tung-ge had been in ruins for nearly sixty years. I therefore consider myself justified in assuming that the pueblos near Golden, Sem po-ap-i and Ka-po, or Valverde and Tuerto, were abandoned in the beginning of the year 1591 on account of a raid by other Indians;

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[1] *Memoria del Descubrimiento*, p. 256: "Fué por entre unas sierras donde halló dos pueblos despoblados de muy pocos dias atrás, los cuales estaban despoblados, respeto de que por guerra de otros, habian dejado sus pueblos, como en efeto hera, por que otros Indios que con nos iban, nos lo diéron á entender, é lo vimos claro ser asi, por las muestras de muchas muertes que habia señales; habia en ellos mucho maiz y frisol." The hostilities might have arisen from Pueblo Indians as well as from wild tribes.

but to what tribe or stock they belonged, it is impossible to determine.

In the east the Tanos range joins that of the Pecos. Although the large Pueblo of that tribe was examined by me in 1880 for the Institute, and a full report upon those investigations published, I deem it advisable to devote the next section of this Report to the Pecos valley, and to the question of the eastern limit of the Pueblos at the beginning of the historic period, as well as in times anterior to the coming of Europeans.

III.

THE UPPER VALLEY OF THE RIO PECOS, THE RIO GALLINAS, AND THE EASTERN LIMITS OF THE PUEBLO COUNTRY.

IN my report to the Institute upon the aboriginal ruins in the valley of the Pecos, I stated that the large ruin known as the old Pecos pueblo was not the only one in that beautiful mountain valley. Since that report was published, I have visited several of these ruins: that at Las Ruedas near the railroad station of Rowe, formerly Kingman; the one at San Miguel de Pecos, farther southeast; and that at San Antonio del Pueblo, three miles down stream. I have also heard of a ruined pueblo near El Gusano, and of ruins higher up the valley than the historic Pecos or Tshi-quit-e.

The Pueblo de las Ruedas is called by the Pecos Indians Ku-uăng-ual-a.

The ruins of Ku-uăng-ual a lie near the bed of the small creek called Arroyo Amarillo, and consist of low mounds of rubble. The village was manifestly built of that material, and forms three quadrangles connected with one another, and with only two entrances. I found no trace of estufas; and the appearance of the ruins shows long decay. The potsherds looked to me quite ancient, and I noticed no coarsely glazed specimens; but corrugated earthenware, as well as white and black and red and black, was abundant. The spot is a sheltered depression, with forests around it and water near by; and the pueblo may have contained, at most, four hundred souls. Skeletons have been exhumed in the immediate neighborhood of this village, but I was unable to ascertain anything definite concerning them. It was a compact pueblo and well constructed for purposes of defence, but commanded no distant view, since it lies at the foot of the abrupt wooded mesa that skirts the Upper Pecos valley on the southwest, and is encompassed by forests on all other sides. The site was selected on account of the proximity of wood and water. Lookouts could be established at some distance from the pueblo, but even these commanded only a limited portion of the valley, the near slopes of the mesa, and the Tecolote chain.

From the testimony of the chroniclers of Coronado's march, it would appear that Tshi-quit-e was the only pueblo inhabited by the Pecos tribe in the middle of the sixteenth century.[1] The "last of the Pecos," now living at Jemez, make the same assertions. But in 1583 Antonio de Espejo mentions three villages of the Tanos, as he calls the Pecos tribe.[2] Fifteen years later Oñate speaks of only one;[3] and so does Benavides in 1629.[1] Seven years later, however, the priest of Pecos, Fray Antonio de Ybargaray, mentions a "Visita de Indios," dependent upon the parish of Pecos, where he had gone to say mass.[2] It is therefore not absolutely certain that Tshiquite was the only Pecos settlement occupied in the earliest times of Spanish colonization, although it is possible that Espejo was misled, attributing to the Pecos pueblos inhabited by some other stock. The "Visita" spoken of by Father Ybargaray in 1636, may have been a settlement then recently formed, and subsequently abandoned.[3]

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[1] *Cibola*, chap. vi. p. 182: "Cicuyé un." In chapter v. page 179, he says, however: "On compte sept autres villages entre la route et la Sierra Nevada; il y en a un soumis à Cicuyé qui fut à moitié détruit par la nation, dont je viens de parler." That "nation" was the one called by him Teyas. But as he only states that the village was "subject to" Pecos, and reports from hearsay, there may have been one of the Pecos villages destroyed previous to 1540, and never reoccupied. On page 182 he says again that Cicuyé (Tshiquite) was the last pueblo to the east, "de là à Cicuyé qui est le dernier village." (It is given upon Plate I. Fig. 17.)

[2] *Relacion del Viage* (Doc. de Indias, vol. xv. p. 122). He says there were three pueblos, but clearly identifies one of them with the Ciquique — Cicuyé, Cicuic (the Tshiquite of to-day) — of Coronado. This is alone sufficient to identify the Pecos with the "Tamos"; but, in addition, we have the statement of Oñate in *Discurso de las Jornadas*, p. 258: "Al gran pueblo de los Peccos, y es el que Espejo llama la prouincia de Tamos."

[3] *Discurso*, p. 258. *Obediencia y Vasallaje de San Juan Baptista*, p. 113: "La Provincia de los Pecos con los siete Pueblos de la Cienega que le cae al oriente."

Between the great Pecos pueblo and the Pecos River I noticed in 1884 a number of ruins of small houses which had probably been built of stone; and I had seen similar ones in 1880 in another direction from the pueblo. I then believed them to be burial places, but I am now positive that they were houses of the small type. At the little town of Pecos I found one ruin with three apartments measuring respectively, 2.2, 2.2, and 3.8 by 3.7 meters, thus forming a house 8.2 by 3.7 meters (27 by 12 feet). I measured in all nine which were much smaller; the largest one being 4.0 by 3.5 meters (13 by 11½ feet). Hardly any pottery was visible about these ruins.

I was informed that on the extensive mesa separating the Pecos valley from the Galisteo basin there are two pueblo ruins, both much decayed. One was said to lie at the Ojo de la Vaca, the other in the Valle de San Miguel. The mountain torrents near which these ruins are situated are

[1] *Memorial*, p. 25.

[2] *Carta al Virey* (*Escrita por el Ministro de Pecos, Fray Antonio de Ybargaray*, November 20, 1636, MS.): "Sobre que vn domingo . . . la missa adonde yo abia ido a decirla a vna bisita de Yndios."

[3] There are several such instances in the environs of Zuñi. In the last century those Indians formed various pueblos at some distance from their large one, which were subsequently abandoned.

both tributaries of the Arroyo of San Cristobal. This might imply that the villages belonged to the Tanos group, but in default of precise information on that point, I refer to them here, as they lie nearer to Pecos than to the ruins of the Galisteo group.

Near the former railroad station of Fulton, southeast of Rowe, at a place called El Gusano, stand ruins which the Pecos Indians call Se-yu-pä, which they claim as one of their ancient villages. Not having visited the spot myself, I cannot decide whether this ruin may not be the same as the one near Pajaritos to which the Pecos give the name Se-yu-pä-lo. The similarity of the two Indian names is so great, and Pajaritos and El Gusano lie so close together, that I am inclined to believe there is but one ruin in that vicinity.

The distance from Rowe to San Miguel is seventeen miles to the southeast; Fulton lies about midway between. At San Miguel there were two pueblos, and two at San Antonio del Pueblo, three miles to the south; so that, including the great village of Tshiquite, there are along the course of the Upper Pecos River at least seven pueblo ruins within a distance of twenty-five miles.

The two ruins at San Miguel are small, and much obliterated. One lies a quarter of a mile east of the town, and on the slope of a low embankment, quite close to the Pecos. All I could find of it was a long mound, from which a rude stone wall protruded. This wall had a length of 34.5 meters (113 feet), and the mound was 6 meters (18¾ feet) wide. Two partitions are also visible, three meters apart, and the end of a long wall parallel to the main one, and two meters distant from it, also crops out. The pottery was corrugated, and white with black decorative lines, — that is, of the older kind. Gray obsidian and much flint were scattered about the mound.

The other ruin, if it had not been for the potsherds with which it was covered, I should have overlooked, so low and indistinguishable had it become. This pottery is decidedly of the older type, corrugated, black and white, and red and black.

For the ruins near San Antonio del Pueblo, three miles southeast of San Miguel, I refer to Figures 18 and 19 of Plate I. Both seem to belong to the "one-house" pueblo pattern. The one on top of the mesa (Fig. 19), east of the little hamlet of San Antonio, is a rectangular stone-heap, from which walls protrude in only one place. These walls are built of pieces of the red sandstone of which the mesa is composed, and are only 0.22 m. (9 inches) thick; three partition walls are also visible, respectively 2.1 and 2.8 m. (7 and 9 feet) apart. No estufa can be seen, but in the centre of the chaotic mass of rubbish there is an open space measuring 7 by 4 m. (22 by 13 feet), showing that the pueblo had once an interior courtyard. This pueblo is one of the most compact I have ever examined, and occupied nearly the whole surface of the cliff, which is almost vertical towards the west, but with a less slope on the east. Its height above the Pecos is 32 meters (105 feet), and the distance from its base to the river's edge about two hundred meters, which space is occupied by fields. The situation of the village was such as to command a beautiful view. The valley widens towards the north and northwest, and in the distance loom up the snow-capped summits of the Santa Fé Mountains. In the southeast, wooded heights close in upon the Pecos, and in the west rise frowning and bleak mesas. Everything requisite for secure and prosperous habitation, according to the ideas and wants of the Pueblo Indian, is realized in a small compass.

In the very village of San Antonio, on the west bank of the

Pecos, lies the other ruin, represented on Plate I. Figure 18. It is reduced to flattened mounds, encompassing a courtyard which is open to the southwest. Very little pottery covers those ruins, and, as at the one on the mesa, it is of the older type. I found many flint arrow-heads here, but only a single piece of obsidian. One of the inhabitants of San Antonio, however, presented me with two handsome stone axes that had been found on the spot, which, like those found in all Northern ruins, had the crease or groove for fastening the handle cut all around the axe. The same person assured me that years ago a number of skeletons had been exhumed on the east side of the lower ruin, towards the river. They were rather closely packed, and the bones of each body, including the skull, lay in a heap, leading to the inference that they were buried in a sitting posture, with the face to the east.

The Pecos told me that they called one of the villages at this place Pom-o Jo-ua, leaving me to conjecture which of the two it was. They said at the same time, that the pueblo at El Gusano, nine miles higher up, was the last one of their tribe in that direction. The Pecos also assert that they came into their valley from the south or southeast, gradually moving up, and that Tshiquite was the last village built and occupied by them. There is nothing improbable in this. The incursions of the tribes from the plains tended to drive the Pueblos into the mountains, little by little.

Before turning to the important question of the eastern limit of the Pueblos, I will give a brief summary of what I have heard about ruins said to exist below San Antonio, as well as to the east of the Pecos valley.

I have been informed that on the banks of the Pecos the ruins do not extend much farther than La Cuesta or Anton Chico; and that there are distinct vestiges near the former of these two points has been repeatedly stated. The character of these vestiges is said to be that of "pueblos," in the sense of communal large-house structures. Beyond Anton Chico remains, in appearance very ancient, and buried beneath the surface, are found in the so called Cañada Pintada: a long, bleak gorge, with natural tanks and water-holes, but destitute of springs. The sides of this gorge, as its name indicates, bear pictographs on the rocky surface. The Cañada lies west of the Pecos River, and on the opposite side there seem to be no ruins in latitude 35°, or farther south. I shall therefore assume that this parallel of latitude is the southern limit of ancient pueblos along the Pecos.

The Rio Gallinas, a mountain creek rising above Las Vegas, joins the Pecos a short distance below Anton Chico. The Pecos flows from northwest to southeast, the Gallinas nearly due south, with a slight deviation to the east. Between the two streams are other watercourses: the Rio de la Vaca, Rio del Toro, and the Tecolote. The country is wooded and mountainous; along the streams are fertile patches, and it is said that traces of ruins are met on all three of these watercourses.

In the Valles de San Gerónimo, eighteen miles west of Las Vegas, I satisfied myself of the presence of former Indian habitations. They seemed to belong to the small-house pattern, were mostly obliterated, and showed very little pottery. Near Las Vegas there were traces of ruins in three places, on both banks of the Gallinas River, between the town and the entrance to the gorge of the hot springs. The pottery of these ruins belonged to the oldest type, corrugated, black and white, and red and black. I found obsidian, flint, and fragments of metates and of slabs that had served as door-sills, the latter appearing very crude and much worn. From an old resident I learned that two of the villages, at the Plaza Arriba and at Los Vigiles, consisted of about thirty small houses each, irregularly scattered, and that each had a round estufa. The walls were of adobe on rubble foundations, and their thickness exceeded not 0.25 m. (10 inches).[1] On the lower course of the Gallinas, between Las Vegas and the junction with the Pecos, there are said to be ruins at Romero and near the Chaperito. Whether there are traces of pueblos farther east, and as far as old Fort Bascom, I am unable to say.

North of Las Vegas, it seems that neither in the vicinity of Mora on the slopes of the high eastern range, nor in the Sierra de los Ratones, still less in the plains, have pueblo ruins been discovered. On the other hand, Mr. William Kroenig, in his Report to the Territorial Bureau of Immigration of New Mexico, in 1881, makes the following statement in regard to Mora County in general: "The county shows in many places traces of former occupation by an agricultural people. Their mode of building differed in so far from that of the present Pueblo Indians that their villages were of smaller dimensions, and as in all the excavations made earthenware pots filled with charred corn were unearthed, it may be presumed that these villages were destroyed by the wild Indian tribes of the prairies. All these ruins show large quantities of pottery, well made arrow-points of flint and obsidian, hand mills (metates), etc. The cañons also show the remains of cliff houses."[2]

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[1] Possibly every trace of them has now disappeared. Two of the sites lay on the left, and one on the right bank of the Gallinas, all three above East Las Vegas. I was also told that in former times the Pecos Indians were accustomed every summer to spend a short time at the site of Las Vegas. A creek in the neighborhood still bears the name of "Arroyo de los Pecos."

[2] Wm. Kroenig, *Report as to Mora County*, 1881, p. 4. Mora County lies on the eastern slope of the mountains, and extends as far as the eastern boundaries of New Mexico, embracing also a part of the plains. It lies approximately between latitude 35¾° and 30¼° N., and longitude 102° and 105½° W.

I place full reliance on Mr. Kroenig's statement, which tends to show that whatever ruins still exist in Mora County belong to the small-house type of architecture, a type which was no longer constructed by the New Mexican Pueblos in the sixteenth century. On the other hand, I have been informed that the ruins at Chaperito are those of a typical pueblo.

Hence the limit of Pueblo architecture seems to extend as far east as longitude 105°, possibly to 104°, between the parallels of latitude 35½° and 35°. North of 35½°, their limit appears to follow the western slope of the high sierra, or approximately the meridian of 105½°.

There is documentary information of the sixteenth century which bears upon this question as to the eastern limit of the pueblos.

Hernando de Alvarado was the first Spanish officer who visited Pecos in 1540, and his report conveys the impression that Pecos was the last pueblo toward the east.[1] This impression is confirmed by the descriptions of the route taken in the following year by Coronado and his force, when they marched into the plains in search of Quivira. Their course from the Pecos pueblo was to the northeast, and they crossed the Pecos River a short distance beyond the village, but although they must have traversed the Tecolote chain and its partly irrigated valleys, it is positively asserted that no other pueblo was met with by them.[2] When the main body under Arellano returned from the plains, they struck the Pecos River about thirty leagues (eighty miles) below Tshiquite, and followed it as far as the pueblo, without noticing any settlement of sedentary aborigines.[1]

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[1] *Relacion de la Jornada.* Castañeda, *Cibola*, p. 72.

[2] *Cibola*, pp. 116–188. *Relacion Postrera*, MS. Juan Jaramillo, *Relation du Voyage fait à la Nouvelle Terre* (Appendix to *Cibola*, p. 371). Jaramillo speaks of two streams after the Spaniards had crossed the Pecos. All agree that the direction taken was to the northeast.

In 1583 Espejo descended the Pecos River from Tshiquite to Northwestern Texas, but except the three pueblos which, as I have previously remarked, he ascribes to the Pecos tribe, he saw no trace of villages.[2]

The most important testimony is that furnished by the journal of Gaspar Castaño de Sosa in the years 1590 and 1591. This officer was Lieutenant Governor of New Leon, and with a force of about one hundred men, a pack train, and a number of carts, he left Almaden in New Leon on the 27th of July, 1590, reaching the Rio Grande on the 9th of September. Crossing that river on the 1st of October, he continued his march to the east under great difficulties, resulting from lack of water and the absence of game, until he reached the Rio Salado on the 26th of the same month. It is needless to prove that the Salado was the Pecos.[3]

The Spaniards followed the course of this river upwards until the 23d of December, without seeing any trace of Indian settlements. On the 28th of October they met Apaches with troops of dogs.[4] On the 23d of December a scouting party returned with the news that an Indian pueblo was near by.[5] Until then the Spaniards had traversed only sandy expanses, with an occasional mountain chain looming up on the horizon; now they were in a country at once wooded and broken. The pueblo lay some distance west of the Salado, in a valley surrounded by forests and mountains. Castaño was compelled to take the village by storm, for its inhabitants had treacherously assailed the scouting party, wounding several of them, and depriving them of their arms and equipments. The interesting fact appears in connection with the storming of this village, that its natives had not the slightest conception of the nature and effects of fire-arms.[1]

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[1] *Cibola*, pp. 135 and 136.

[2] *Relacion del Viage*, p. 123.

[3] *Memoria del Descubrimiento*, pp. 196 *et seq.*

[4] Previously they had also met some Tepehuanes. *Memoria*, pp. 207, 209. The Apaches, called "Vaqueros," had dogs, and used them as beasts of burden. See Part I. of this Report, p. 179.

[5] *Memoria*, pp. 220 to 222.

The "Rio Salado" flowed "a quarter of a league" from the pueblo, and Castaño observes that its water had lost its alkaline properties "many leagues below."[2]

Leaving this pueblo on the 6th of January, 1591, with a part of his force, Castaño struck out for the west, crossing a wooded mountain. On the evening of the first day he reached another river, "all frozen." A short distance beyond this river stood a small village; farther on were five pueblos, not far from one another; finally, a large village near the banks of a great river. That river was the Rio Grande, and the Spaniards reached it on the 12th of January.[3] As it is certain that Castaño marched up the Salado to a place where that stream flowed through a broken and wooded country, that place must have been north of the parallel of thirty-five degrees. At some point, therefore, above Anton Chico, he must have turned off to the west, marching across the country to the Rio Grande. That this was the great river to which he for the first time applied that name is certain; for on its banks he afterwards visited the Quereses (Queres Indians), and on the same river stood the pueblo where Fathers Rodriguez and Lopez were murdered in 1581.[1]

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[1] In proof of this Castaño relates that only when some of the Indians who accompanied him from Nuevo Leon began to show their arrows did the Pueblos retire to cover. The musket-shots fired into the air produced no effect. *Memoria*, p. 231: "É visto por los dichos Indios que los nuestros les tiraban flechas, se espantaban é mostraban mas temor, que no de la arcabuzeria; y asi mandó el dicho Theniente, que les apuntasen por todas partes; y asi se hizo." Compare also pp. 232 to 234.

[2] *Memoria*, p. 141: "Por que debaxo de esta elada, iba alguna agua." Ibid., p. 239: "Á un quarto de legua va el rio Salado que decimos, por donde fué nuestro camino, aunque el agua salado se pierde muchas leguas atrás."

[3] Ibid., p. 245. On page 259 he calls that river "el Rio Grande."

There is no stream of any permanence between the Pecos and the Rio Grande and near the former. Consequently, the river which flowed a quarter of a league distant from the pueblo which Castaño had to take by assault cannot have been the Pecos, but some watercourse to the east of it, — either the Gallinas or the Tecolote. The small village next to it, however, was situated on the Pecos. It cannot have been Tshiquite or the "old Pecos pueblo," for that was the largest Indian town of New Mexico.[2]

Without attempting to identify any of the ruins described or mentioned in this chapter with the two pueblos first spoken of in Castaño's journal, this much seems probable: that towards the end of the sixteenth century inhabited villages existed southeast of the pueblo of Tshiquite or Pecos and north of the thirty-fifth parallel of latitude. To what linguistic group or special tribe the inhabitants belonged, it is of course impossible to determine.

The statements of Castaño derive some confirmation through one of the documents which Oñate caused to be executed touching the submissions of the Pueblo Indians and the division of New Mexico into parishes. On the 9th of September, 1598, Fray Francisco de San Miguel, one of the missionaries accompanying Oñate, was assigned to "the province of the Pecos and the seven pueblos of the meadow (Cienega) lying to the east of it, and all the Vaqueros (Indians of the cows or buffaloes, the Apaches of the plains) of that chain and district as far as to the Sierra Nevada.[1]

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[1] *Memoria*, p. 248.

[2] Pecos is always spoken of as an extraordinarily large pueblo. That the first village, the one which Castaño took by storm, was not Tshiquite, is clear. In the first place it lay only a quarter of a league from the river which Castaño took to be the Salado or Pecos, but which was in reality either the Gallinas or the Tecolote; and moreover the Indians of Pecos would not have been ignorant of fire-arms, as were those of that pueblo.

It is plain that the enormous parish thus formed lay east and south of the Santa Fé Mountains. But it also appears that it included seven inhabited pueblos situated east of the great Pecos village. It is fruitless to attempt to locate these with any precision.[2] It is also quite uncertain whether the number seven was correct. At all events there were inhabited villages beyond the pueblo of the Pecos tribe, and it seems probable that they lay west of the line which I have assumed to be the eastern limit of sedentary Indians in New Mexico.

In the Introduction to this part of my Report I stated that traces of sedentary Indians had been found in the plains on the banks of the Canadian River.[3] I have seen and examined two ancient flat urns, decorated with dark lines, that were coarsely glazed. It was undoubtedly pueblo pottery, of the kind so common in ruins of the historic period. Both urns were remarkably well preserved, and they had been dug up in an embankment on the Canadian River, about twenty-five miles east of Ocaté (Mora County). This isolated find proves nothing, since I could not ascertain that any ruins had been noticed in the same neighborhood. But former buffalo hunters have repeatedly assured me that along the Canadian River they had come upon stone enclosures and mounds covered with ancient pottery. It would be well to investigate the truth of such statements. Twice at least within historic times, bands of Pueblo Indians have deserted their villages and established themselves in the plains near such of the Apaches as were on good terms with them at the time. In the middle of the seventeenth century a part of the Taos Indians removed to Cuartelejo in Eastern Colorado, whence they were brought back by Juan de Archuleta.[1] A similar instance occurred in the first years of the eighteenth century; the tribe of Picuries again emigrating to Cuartelejo, whence it returned to its pueblo in 1706.[2] Such temporary dwelling of Pueblo Indians on the plains, each time extending over a period of several years, must have left traces in the shape of manufactured objects characteristic of pueblo culture. It is well to bear this in mind whenever finds occur like those near Ocaté.

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[1] *Obediencia y Vasallaje de San Juan Baptista*, p. 113.

[2] The designation of "Cienega" proves nothing. Cienegas, or meadows, are found in a great many places; Las Vegas was a Cienega, and there is one at San Antonio del Pueblo.

[3] *Ante*, p. 12.

The Pecos Indians were separated from their kindred in the west, the Jemez, by the range of the Tanos, and by the Queres, of the Rio Grande and the Jemez River valleys. Before proceeding to cast a glance at the antiquities of the Jemez, I will devote the next chapter to the district of the Queres, which is very rich in such remains.

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[1] This is related by Escalante, *Carta al Padre Morfi*, par. 12.

[2] I have treated of this temporary emigration of the Picuries in my paper on the *Expedition of Don Pedro de Villasur to the Platte River* (Historical Contributions by the Hemenway Southwestern Archæological Expedition, p. 179).

IV.

THE VALLEY OF THE RIO GRANDE BETWEEN THE RITO DE LOS FRIJOLES AND THE MOUTH OF THE JEMEZ RIVER.

THE Queres Indians of New Mexico claim the range above described, asserting that the majority of the ruins scattered through it are those of villages of their tribe. At the present day they hold only the banks of two of the streams mentioned, three of their pueblos being situated on the Rio Grande, and two on the Rio Jemez. East of this district extends the former country of the Tanos; south, the range of the Tiguas; west and northwest, that of the Jemez and Navajos; and north, that of the Tehuas. The Rito de los Frijoles, with its numerous cave dwellings, forms what seems to be a boundary line dividing the Tehuas from the Queres stock. To that romantic gorge we will now return, where we left it at the close of the first chapter of this Report.

From the southern edge of the Ziro Ka-uash, or Mesa del Pajarito, we look down into the Rito as into a narrow valley several miles long and closed in the west by rocky ledges, over which the stream descends to the bottom lands of the Rito. Through these it flows for several miles as a gushing brook, enlivened by trout, bordered by thickets of various kinds of shrubbery, and shaded at intervals by groves of pine, and tall, isolated trees of stately appearance. In the east, not far from the Rio Grande, a narrow, frowning gateway is formed by lofty rocks of black basalt, leaving space for the bed of the stream, the waters of which reach the river only during freshets, while in the valley they are permanent. The slope of the mesa lining the Rito on the south is gradual, though steep; ledges and crags of pumice protrude from the shrubs and grass growing over it. Tall pines crown it above. The average depth of the Rito below both mesas is several hundred feet; in places, perhaps as much as five hundred or more. It is not properly a valley, since its greatest width hardly attains half a mile, but a gorge or "cañon" with a fertile bottom and a brook running through it.

Descent into the Rito from the north is possible in several places, though tedious on account of the steepness and of the vegetation covering the slopes. If we cross the bottom, ascend the southern mesa, and from its brink look down again into the gorge, the northern wall presents a striking appearance. With few intervals, it is a long line of light-colored cliffs of very friable volcanic tufa, in places vertical and smooth, but mostly worn into angles and crags, running in sharp zigzag lines, like the "coulisses" of a stage. A talus of varying height, steep and covered with rocky débris, extends from the bottom of the gorge to the foot of these cliffs. As seen from the brink of the southern mesa, the view of the Rito is as surprising as it is picturesque.

The effect is heightened by the appearance of a great number of little doorways along the foot of the cliffs, irregularly alternating with larger cavities indicating caves, the fronts of which have partially or completely crumbled away. The base of the cliffs rises and falls, so that the line of caves appears to be at different elevations, and not continuous. There are spaces where the rock has not been burrowed into; in some places two, in others three, tiers of caves are visible. The whole length of this village of troglodytes is about two miles, rather more than less. Upon the assumption that all the grottos were occupied simultaneously, the population of the Rito would have been much larger than that of the Pu-yé, and might have equalled that of the Pu-yé and Shu-finné combined, amounting to nearly twenty-five hundred souls; but it is more likely that fifteen hundred represents the number of the inhabitants. Here was a little world of its own. The bottom afforded a sufficient extent of very fertile soil; there was enough permanent water to permit irrigation, and there are even traces of acequias on both sides of the brook. Trees stood in front of their homes, and the mesas above are well wooded. Game of all kinds, deer, elk, mountain sheep, bears, and turkeys, roamed about the region in numbers,[1] and the brook afforded fish. The Rito is cool in summer and not very cold in winter, compared with the surrounding table-lands and the Río Grande valley. It was a choice spot, admirably fitted for the wants of a primitive people.

It was also excellently situated for protection against a savage enemy. The inhabitants of the Rito could neither be starved out nor cut off from their water supply. Prowling Navajos might render hunting on the mesas very unsafe for months, but only a direct attack in great force could imperil the cave dwellers at home. It was easy for the latter to guard against surprise, since the foot of the cliffs affords lookouts over the whole bottom, up and down.

The cave dwellings of the Rito are so much like those of the Pu-yé and Shu-finné that they scarcely need description;

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[1] All the kinds of game mentioned were very abundant around the Rito de los Frijoles in former times, but the communal hunts of the Pueblos, and later on the merciless slaughter of the Apaches, have greatly reduced it. Deer, bears, and turkeys are still to be found. In 1880 I saw the last mountain sheep at the Rito. That beautiful animal has now completely disappeared from the Valles range.

the differences are purely local and accidental. As in the Tehua country, they have artificial floors, and are whitewashed inside or daubed over with yellow clay. There are the same types of doorways, air-holes, and possibly loopholes; the same kind of niches and recesses; but the cave dwellings at the Rito are the most perfect seen by me anywhere.

The hearth or fireplace offers nothing remarkable, being simply made of two slabs set on edge against the outer wall of the cave. Above it, and 0.50 m. (22 inches) above the floor, is a hole serving as a means of escape for the smoke. Here are the only chimneys to be found in caves of artificial make, and since the Rito during the past and present centuries has been inhabited several times, and since shepherds and cattle thieves have repeatedly made the caves their abode, their antiquity is doubtful.[1] There are also some metate frames unquestionably modern, as similar ones can be seen at the Zuñi village, at the village of To-ya or Nutria, inhabited during summer by portions of the Zuñi tribe, and the remains of one existed in 1886 in one of the caves of the Pu-yé.

The same doubt as about the chimneys arises in regard to a cave occupying the corner of a projection of one of the cliffs on the upper part of the Rito, and it stands by no means alone. Three sides of the cave are of natural rock, but the third is closed by a thin wall of blocks of stone laid in mud and well built. The doorway has a frame of stones, and two lintels, the upper one made of half-round strips of wood, the lower of round sticks, laid lengthwise across the opening. Both wood and stone work appeared to me sus-

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[1] I have not been able to examine the papers relating to the grant of the Rito; but that cattle and sheep thieves made it their hiding place is said to be mentioned in them. The tale is current among the people of Cochiti and Peña Blanca.

Plate II. — Houses built against the Cliffs, Rito de los Frijoles.

piciously fresh; still, the place is well sheltered, and this may account for their preservation.

The caves themselves, like those at the Pu-yé, are poor in relics, except those of the upper tiers, in which a few jars and bowls have been found. The valley of the Rito, especially the ruins, of which I shall speak further on, abounds in fragments of pottery, stone axes, arrow-heads, metates, grinders, and the like. Obsidian, in sharp splinters and chips, is profusely scattered about; and the rock itself contains nodules of that material, so valuable to primitive man in the Southwest. The axes are mostly of basalt. I have been shown a fetich made of lava, which was reported to have been found at the Rito, and pictographs exist in several places. The potsherds are of various kinds, corrugated and plain black, the very ancient black and white, and black and red, and also the more modern kind, decorated with coarsely and thickly glazed designs. In short, we have in the manufactured objects also a repetition of features noticed at the Pu-yé and the Shu-finné.

I measured nearly every cave through the whole length of the cañon as far as traces of former habitations extended, but must confine myself to some details only. Against such of the cliffs as rise vertically, and the surface of which is almost smooth, terraced houses were built, using the rock for a rear wall. Not only are the holes visible in which the ends of the beams rested that supported roofs and ceilings, but in one or two places portions of the beams still protrude. They were round, and of the usual size. Along the base of these cliffs extends an apron, which was once approximately levelled, and on this apron the foundations of walls appear in places. (See Plate II.) It would seem that a row of houses, one, two, and even three stories high, leaned against the cliff; and sometimes the upper story consisted of a cave, the lower of a building.

Chambers nearly circular, larger in size than the majority of caves, are also found in the cliffs, some of which have a low projection around the room like a bench of stone. These were doubtless estufas, as I was told by one of the Indians who accompanied me to the spot. There is a distinct estufa not far from the bank of the brook opposite those caves situated in the upper portion of the valley, and a smaller one still higher up. Including the four estufas connected with the pueblo ruins, of which I will speak further on, I have noticed at least ten such constructions at the Rito.

In describing the Pu-yé, I spoke of the pueblo ruins which lie on the top of the cliff of that name. At the Rito de los Frijoles there are at least three similar ruins, but they lie in the river bottom. Two of them are in front of the caves at a short distance from the talus sloping up to them. One was a one-house pueblo of the polygonal type, which probably sheltered several hundred people; the interior court still shows three circular depressions or estufas. The other, which lies about sixty meters (196 feet) east of it, shows thirty-nine cells on the ground floor; and sixteen meters (23 feet) north of it is an estufa twelve meters in diameter. Farther east are the remains of a circular tank fifteen meters (49 feet) across, and still beyond stand the remains of a round tower, which was certainly built in the past century by Spanish owners of the Rito. There are some doubts in regard to the antiquity of the tank also. The average dimensions of forty-four rooms of the smaller house and of those that can be measured in the larger ruin are 3.2 by 3.8 meters (10½ by 12½ feet). The three estufas in the courtyard of the polygonal ruin measure respectively 7, 10, and 11 meters across (23, 32¾, and 36 feet). The walls of these buildings were of blocks of pumice from the cliffs, of various sizes, but nearly regular in shape. As usual, they were laid in adobe mud, in courses, without breaking joints.

A third ruin, situated nearly a mile farther down the gorge in a grove of pine trees, formed an L, with a rude stone enclosure on its north side, and connected with it is a small estufa. It is quite as much decayed as the large polygon, and the potsherds covering its surface are similar.

Indian tradition regards both types of dwellings as the work of the same tribe, but I have only obtained the outlines of the elaborate folk-lore attached to the Rito de los Frijoles.

The people of Cochiti told me that the caves of the Rito, as well as the three pueblo ruins, were the work of their ancestors, when the Queres all lived there together, in times much anterior to the coming of the Spaniards. The place is called Tyuo-nyi in the Queres language, a word having a signification akin to that of treaty or contract. It was so called because of a treaty made there at some remote period, by which certain of the Pueblo tribes, probably the Queres, Tehuas, and perhaps the Jemez, agreed that certain ranges loosely defined should belong in the future to each of them exclusively. The Queres also told me that their ancestors, after having dwelt at the Rito for a considerable length of time, began gradually to leave it in bands, in order to build pueblos on the mesas south of the Rito. Whether these bands always consisted of complete gentes, or whether they included fragments of different clans, I could not ascertain. This tale was told me at various times, and by members of different clans and esoteric groups, and therefore seems to be a tradition common to the tribe of Cochiti in general. The medicine-men of Cochiti still visit the Rito frequently, to pay homage to the Shi-ua-na, or spirits that are supposed to be the particular Genii of their pueblo, and still to hover about the caves and ruins. To any one acquainted with Pueblo Indian beliefs, this last custom will appear conclusive evidence that the Rito was, in times long past, the home of that branch of the Queres which now occupies the pueblos on the Rio Grande, Cochiti, Santo Domingo, and San Felipe.

These traditions concerning the Rito do not in anywise conflict with the ancient mythological tales about the origin of the Pueblos, since they relate to subsequent events. The Queres maintain that they, as well as the Tehuas and others, came to the surface of the earth at Shi-pap-u, and that they slowly drifted southward. Their migration legends are, however, but imperfectly known to me.[1] The definite historic tradition of the Queres of the Rio Grande seems to begin near the banks of that river, at the Rito de los Frijoles, which appears as the starting point of a dispersion, of which perhaps all the Queres pueblos, certainly those along the Rio Grande and in the Valles chain, were the result. The general direction of the movement has been from north to south, and I shall follow their traces as far as they become apparent in the ruins of former Queres settlements.

The Mesa del Rito borders on the south the gorge of the

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[1] My friend Juan José Montoya, now deceased, called by his Queres name Mat-ya-ya Tihua, during the last interview I had with him at my home at Santa Fé, told me fragments of the migration tales of the people of Cochiti, while the Pueblos and the Navajos still formed one people near the Spanish Peaks (Huajatoyas) in Southeastern Colorado. They were headed by two sisters, the elder of whom was called Na-uh Tzit-e, and the younger Osh Tzit-e. The two sisters quarrelled, and the elder, remaining master of the field, took up a line of march with her people to the Rio Grande, and the descendants of that group became the Pueblos; but the younger with her adherents turned to the west. Osh Tzit-e left a peculiar medicine, and a song in the Navajo idiom; and the Jemez and the people of Cochiti, being neighbors of the Navajos, became acquainted with both. The medicine appears to be the peculiar juggling performance of "eating fire," and to it also belongs the imitation of lightning in a dark estufa by means of a peculiar stick and an elastic spiral, called in Queres Po-tsho-äsht. My friend was mistaken when he asserted that only his tribe and the Jemez among the Pueblos had the song, as it is also known to the Tehuas.

"Tuyonyi," and is covered with bushes and with groves of taller trees like Piñon (*Pinus edulis* and *P. Murreyana*). Whether there are ruins on this long and comparatively narrow plateau is doubtful, as I have seen none myself, and the statements of the Indians are contradictory on this point. Across this mesa a trail from east to west, formerly much used by the Navajo Indians on their incursions against the Spanish and Pueblo settlements, creeps up from the Rio Grande, and, crossing the mesa, rises to the crest of the mountains. It seems almost impossible for cattle and horses to ascend the dizzy slope, yet the savages more than once have driven their living booty with merciless haste over this trail to their distant homes.

I estimate the length of the Mesa del Rito at six miles from north to south; it terminates at what is called the Chapero in Spanish, and Kan-a Tshat-shyu in Queres. This is an elevation of trap or basalt, rising almost vertically from the banks of the Rio Grande to the surface of the mesa, above which its slope becomes quite gentle to the top, which is flat and elliptical. On the west, the descent is precipitous for more than a hundred feet. The Chapero in former times was the scene of reckless butcheries of game, termed communal hunts.[1] The adult males of Cochiti, or

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[1] A good description of a communal hunt is contained in Villagran, *Historia de la Nueva Mexico* (canto xviii. fol. 163). It took place on the plain of Zuñi, in the fall of 1598.

"Y llegados al puesto estauan juntos,
Mas de ochocientos baruaros amigos,
Y assi como nos vieron arrancaron,
Haziendo dos grandiosas medias lunas
Y cerrando los cuernos se mostraron
En circulo redondo tan tendidos,
Que espacio de vna legua rodeauan,
La sola trauesia, y en el medio,
Con toda nuestra esquadra nos tuuimos,
Y luego que empeçaron el ogeo,
Cerrando todo el circulo vinieron,

sometimes those of that village and of Santo Domingo combined, forming a wide circle, drove the game to the top of the Chapero, from which it could escape only by breaking through the line of hunters. Mountain sheep oftentimes precipitated themselves headlong from the precipice on the west. On such occasions the slaughter of game was always very great, while panthers, wolves, and coyotes, though frequently enclosed in the circle, usually escaped, the hunters not caring to impede their flight.

At the foot of the Chapero, a deep, narrow gorge, the Cañon del Rito, comes in from the northwest. The Mesa del Rito bounds it on the north and northeast, and the high and narrow plateau called Potrero del Alamo (in Queres, Uish-ka Tit-yi Hän-at) on the west and southwest. This gorge empties into a little basin on the west bank of the Rio Grande, and as low as the level of that stream. From this basin, the geological features of the surrounding heights can be very clearly seen. The cliffs near the stream are of dark-hued trap, basalt, and lava, forming a narrow strip along the river,[1] while all the rocks west of it are of light-colored pumice and tufa. The basin is not more than three quarters of a mile in diameter, and groves of cottonwood trees grow on its fertile soil. A small ruin stands at the foot of the Potrero del Alamo, having twenty-four cells of the average size of 3.5 by 2.9 meters (11½ by 9½ feet), constructed of

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A meter donde juntos nos quedamos.
Tantas liebres, conejos, y raposos,
Que entre los mismos pies de los cauallos,
Pensauan guarecerse, y soccorerse."

The product of that hunt was eighty hares, thirty-four rabbits, and other game of less consequence. The "Cha-cu" of the Peruvians were only communal hunts like those of the Pueblos. See also Torquemada, *Monarchia*, vol. i. p. 680.

[1] The formation of black trap, lava, and basalt crosses to the west side of the Rio Grande a little below San Ildefonso, and extends from half a mile to a mile west. Hexagonal columns of basalt crop out near the Mesa Prieta.

parallelopipeds of tufa. Scarcely any pottery was to be seen.

From this basin the cliffs surrounding it on three sides rise to towering heights, and the Potrero del Alamo especially presents a grand appearance. On the east side of the Rio Grande the frowning walls of the Caja del Rio loom up, with their shaggy crests of lava and basaltic rock. The whole country is a wilderness, and will scarcely become anything else. Neither the mesas nor the gorges have any water, but precipitation is greater in the mountains than on the low lands, which explains why the Queres established themselves on heights so difficult of access and so remote from permanent streams. Except at the little basin, the Rio Grande leaves no space for settlement between San Ildefonso and Cochiti. It flows swiftly through a continuous cañon, with scarcely room for a single horseman alongside the stream. The lower end of this cañon afforded the people of Cochiti a good place for communal fishing in former times. Large nets, made of yucca fibre, were dragged up stream by two parties of men, holding the ends on each bank. The shallowest portions of the river were selected, in order to allow a man to walk behind the net in the middle of the stream. In this manner portions of the river were almost despoiled of fish. The same improvidence prevailed as in hunting, and the useful animals were gradually killed off. After each fishing expedition, the product was divided among the clans *pro rata*, and a part set aside for the highest religious officers and for the communal stores.

As we look into the mouths of the Cañon del Alamo and of the Cañada Honda, from the little bottom at the foot of the Chapero, they open like dark clefts of great depth between the cliffs of the lofty mesas. On the south a crest, perhaps a thousand feet high, rises above the western bank of the river, crowned by battlements of basalt. This is the Mesa Prieta, or Kom-asa-ua Ko-te, from which a steep slope descends covered with volcanic débris, hard and soft. Up this slope toils the almost undistinguishable trail to Cochiti. From the crest we overlook in the south a series of rocks and wooded heights, and in the west a ridge flanked by gorges on both sides. This ridge is the end of a long, narrow plateau, sloping gently toward the Mesa Prieta from the eastern base of the Sierra de San Miguel. The name of this tongue is Potrero de las Vacas, and on it stand some of the most remarkable antiquities in the Southwest.

It requires several hours of steady walking to reach the upper end of the Potrero de las Vacas. The trail leads through forests, in which edible Piñons abound, and in autumn, when the little nuts ripen, bears are not unfrequently met with, and their presence is marked by the devastated appearance of Piñon trees.[1] These trees are also beset by flocks of the *Picicorvus columbinus* (called Piñonero in Spanish and Sho-hak-ka in Queres), a handsome bird, which ruthlessly plunders the nut-bearing pines, uttering discordant shrieks and piercing cries. The forest of the Potrero de las Vacas is therefore not so silent and solemn as other wooded areas in that region, where a solitary raven or crow appears to be the only living creature. To the right of the trail yawns the deep chasm of the Cañada Honda, from which every word spoken on the brink re-echoes with wonderful distinctness. Towards the eastern end of the Potrero the forests begin to thin out, and an open space extends until within half a mile of the rocky pedestal of the San Miguel Mountains. On this open space stands the ruined pueblo shown on Plate I. Figure 11.

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[1] The bear makes great havoc among the Piñon trees. Climbing into the tops for the nuts, he tears off entire limbs and generally ruins the tree. Three kinds of bears are spoken of by the Indians and the Spanish settlers. the silver-tip, (Platiado, Ko-ha-yo Kash-ya), the brown bear (Oso colorado, Ko-ha-yo Ke-kan-ye), and the black bear (Oso prieto, Ko-ha-yo Moh'-na-ka-nyi). The last two, I am certain, are respectively *Ursus cinnamomeus*, or *arctos*, and *U. Americanus*; but whether the silver-tip is really *Ursus ferox*, the terrible grizzly, or some cross, I am unable to tell. I doubt whether the grizzly is found in New Mexico, except perhaps in the northwestern corner of the territory.

Like all other pueblos of this region, it is built of blocks of pumice or tufa, nearly rectangular, but now much worn. I counted 280 cells on the ground floor, and the average size of 126 of them proved to be 4.3 by 2.7 meters (14 by 9 feet). Six estufas are visible; four inside the courtyard, formed by the houses, and two outside. The courtyard is open to the southeast, and the whole forms practically a one-house pueblo, the buildings of which were at least two stories in height, and in some places three, and perhaps four. To the southeast of the ruin, on the edge of the woods, stand the remains of an artificial tank. The population of this village cannot have fallen short of five hundred souls.

In the courtyard, not far from the largest estufa, the diameter of which is 14 meters or 46 feet, I noticed a long slab of red stone, 0.26 m. broad and 0.18 m. thick, broken into two pieces respectively 1.60 and 0.87 m. long, the whole length being therefore 2.47 m. (8 feet). The edges were roughly squared, and on one of the broad surfaces it had grooves like rude footmarks. My Indian guide asserted that this slab was a gua-co, or ladder, by means of which the roof of the estufa was reached, and that the grooves were carved to facilitate ascent. Not far from the place where this primitive ladder rested was the upper part of a stone post, one end of which was shaped like a colossal arrow-head, but what this was intended for I cannot surmise. It was made of hard lava, and may have stood originally in a different place.

The potsherds on the Potrero de las Vacas belong mostly to the coarsely glazed kind; but corrugated fragments and the black and white also occur. Obsidian chips abound, together with moss-agates and flint. A very interesting find was made at this pueblo in 1885, by Governor L. Bradford Prince of New Mexico, who obtained a number of stone idols, rudely carved human figures, some of them of large size, belonging to the kind called by the Queres Yap-a-shi.[1] The name of Pueblo of the Yap-a-shi has accordingly been applied to the ruin, but its proper name is still unknown to me, as the desigation current among the people of Cochiti, Tit-yi Hă-nat Ka-ma Tze-shum-a, signifying literally "the old houses above in the north," with the addition of Mo-katsh Zaitsh, or "where the panthers lie extended," is subsequent to the abandonment of the village. This name refers to the life-size images of pumas or American panthers (also called mountain lions) which lie a few hundred yards west of the ruin, in low woods near the foot of the cliffs called "Potrero de la Cuesta Colorado." (See Plate I. Figure 14.)

These remarkable stone objects, cut out of the tufa which constitutes the surface rock of the Potrero de las Vacas, have already been noticed in the publications of the Institute.[2] I give a photograph of them, taken under my direction by Mr. C. F. Lummis. (See Plate III.)

The figures attached to the rock are two in number, and lie side by side, representing the animals as crouching with

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[1] Yap-a-shi is a generic name given to fetiches representing human forms. Hence they are distinct from animal fetiches, but are not lares or penates. Other names given to such images in Queres idiom are I-jiar-e Ko, and Uashtesh-kor-o. Many of them may represent the same deity or idol, and they ordinarily serve for magical purposes. The Tshayanyi, or medicine-men, have most of them in their possession, although some are in private hands.

[2] A preliminary notice of them appeared in the *Second Annual Report of the Committee*, 1881, p. 22; but I had already given some account of them in *The Nation*, February 10, 1881.

Plate III. — The Panther Statue and Stone Enclosure on the Potrero de las Vacas.

tails extended, and their heads pointing to the east. They are much disfigured, especially the heads.[1] Still, the natural agencies to which the images have been exposed in the open air have rounded the edges of the (originally very uncouth) carvings, and increased their life-like appearance. I recognized at a glance, when I first saw them in the evening twilight of the 25th of October, 1880, the intention to represent panthers preparing for a spring. The length of each statue is 1.80 m. (6 feet) of which 0.74 and 0.71 m. respectively (or a little over one third) make the extended tails; the height is nearly 0.60 m. (2 feet), and the breadth varies between 0.35 m. across the shoulders and 0.43 m. across the hips (14 and 17 inches). The space between the heads and the tails of both figures measures 0.20 m. (8 inches) and 0.53 m. (22 inches).

An irregular pentagonal enclosure surrounds the images, made of large blocks, flags, and slabs of volcanic rock, some of which are set in the ground like posts, while the majority are piled on each other so as to connect the upright pillars. The perimeter of this enclosure is 20.8 m. (68 feet); the height of the tallest post, 1.25 m. (4 feet); and the length of the longest slab, 1.58 m. (5 feet 2 inches). On the southeastern corner is an opening one meter (39 inches) wide, forming the entrance to a passage lined by two stone hedges like the enclosure, running out to the southeast to a distance of 5.85 meters (19 feet). The whole is much disturbed, and its original appearance was certainly more regular than at present. When I last saw the monument, it looked like a diminutive and dilapidated Stonehenge.

In the southwest corner of the enclosure stood, ten years ago, a piñon tree about twelve feet high and fifteen inches in diameter. Whether this tree stood there before the place was abandoned, it is of course useless to conjecture. In the enclosure I found nothing but a few bits of pottery and obsidian, possibly the remnants of sacrificial offerings; but it would have been in the highest degree injudicious to attempt excavations on this spot, as it is still held sacred by the Indians of Cochiti.

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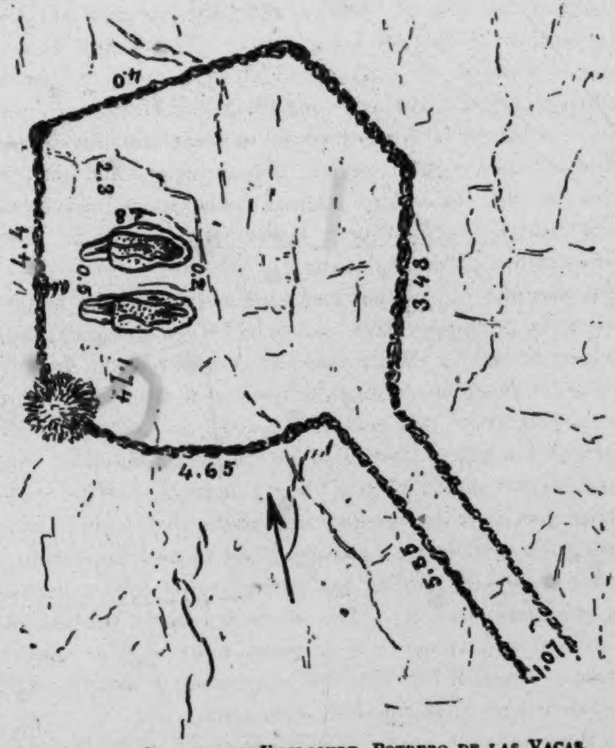
[1] The act of vandalism was perpetrated by shepherds.



Panther Images and Enclosure, Potrero de las Vacas.

Better than all descriptions, this ground plan will give an idea of the monument. Nothing similar to it has ever been discovered in the Southwest outside of the Queres country.

They are the largest images or statues known to have been executed by Pueblo Indians. But, as will be seen further on, they are not the only ones of the kind still in existence between Cochiti and the Rito de los Frijoles.

Subsequent research will no doubt reveal the purpose and signification of these images more clearly than I am able to give it here. All I could ascertain was, that they were fetiches of the panther, Mo-katsh, and as such belonged to the special esoteric group of the Hunters (Shya-yak), of whom the panther is one of the principal protectors and "intercessors." That a certain devotion is still paid to them I am certain, for my Indian friends acknowledged it to me, and two of them smeared the heads of both images with red ochre in my presence, while they muttered prayers between their teeth. The Indians also asserted that the images were made by the same people who built and occupied the old village.

According to their tradition, the first band or group that seceded from the tribe at the Rito wandered as far as the Potrero de las Vacas, and built there the pueblo which is now in ruins. They also carved the images of the panthers, and made the enclosure around them. What caused the subsequent abandonment of the place I have not been able to learn. I have heard stories about attacks by other tribes, either savage or sedentary, and such tales are quite plausible; but there are also indications that the pueblo was gradually abandoned in the same manner as the Rito de los Frijoles, its inhabitants gradually moving southward and building new residences on other sites. The only thing that seems to me fairly well established is that the pueblo on the Potrero de las Vacas was a former Queres village,[1] built while the caves at the Rito were still partly inhabited by people who had emigrated from the latter site for reasons as yet unknown, and that it was abandoned long previous to Spanish occupation.

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[1] I am not positive whether the people of Santo Domingo claim to have ever inhabited the Potrero de las Vacas. Those of San Felipe assert that they have resided in the Cañada de Cochiti, some distance south of the Potrero, which would indicate that they had remained until then with the people of Cochiti.

In the gorges both north and south of the Potrero are quite a number of artificial caves. Those on the north, in the Cañada Honda and the upper part of the Cañon del Alamo, are fairly preserved. The upper part of that gorge is wooded, and the caves were thus somewhat sheltered. They offer nothing worthy of special mention, and do not compare in numbers with the settlement at the Rito. The Queres say that these caves also are "probably" the work of their ancestors. Those on the south side of the Potrero de las Vacas are much more worn, and are connected with the interesting natural rock shelter called by the Queres Tzek-iat-a-tanyi, and now usually termed Cueva Pintada, or the painted cave. This large cavity measures 17 meters (55 feet) across its entrance, its depth is 14 meters (46 feet), and at an elevation of 17 meters (55 feet) above the floor is a hemicycle of pictographs painted in red ochre, to which there is an ascent by means of old and much worn steps in the rock. The pictographs represent some of the well known symbols of the pueblos, such as clouds, sheet-lightning, the sun, dancing-shields, and male and female dancers. Their execution is very rude. The diameter of this hemicycle is 10 meters (32½ feet). Besides these aboriginal daubs, there are modern ones of equal artistic merit, among which the cross is prominent. Cave dwellings have been excavated in the rear wall of the cave, and 15 meters (48 feet) above the floor are indentations showing that chambers had also been burrowed out at this height. The steps therefore may have been made in order to reach this upper tier of rooms; for it appeared to me that the paintings were more recent than the cave village, as they are partially painted over walls of former artificial cells, the coating of which had fallen off before the pictographs were placed on them.[1] Most of the cave dwellings are found on the west side of the Cueva Pintada. Some of them have two tiers; and there are also traces of foundations in front of the cliff, showing that houses had been built against the wall. Of the extent of this cave village it is difficult to judge, but enough is left to indicate that it may have contained a few hundred people. The pottery belonged to the oldest types; mostly white and black, and corrugated. Much obsidian lay about in splinters and chips; also door-sills of diorite, broken metates, grinders made of lava, and stone axes, — in short, the usual "relics" accompanying pueblo ruins.

The gorge on the northern side of which this cave village and the Cueva Pintada lie, is called Cañada de la Cuesta Colorada, deriving its name from seams of blood-red iron ochre that appear in cliffs west of it, at the base of the San Miguel Mountains. That cluster is called by the Queres Rätye, or Rabbit, as its crests on one side resemble the outline of a colossal rabbit, crouching, with its ears erect. The Cañon of the Cuesta Colorada runs along the southern base of the Potrero de las Vacas, and a short distance west of the painted cave another narrow gorge joins it from the southwest. Between the two rises a triangular plateau, called Potrero de las Casas, on the top of which is said to be a pueblo ruin. At the junction of both gorges lies a much obliterated mound, indicating a rectangular building about 25 by 50 meters (80 by 160 feet). The pottery on it is the same as at the Cueva Pintada.

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[1] I was informed that in former times, whenever a pueblo was abandoned, it was customary to paint a series of such symbols in some secluded spot near the site of the village. Whether this is true or not, I do not know.

The settlement at the Cueva Pintada is also claimed by the Queres of Cochiti as a colony from the Rito; it may have been anterior to the pueblo of the Potrero de las Vacas, or coeval with it. Some of my informants thought that it was of a later date, and that its builders were a part of the inhabitants of the village of the stone images. Similar statements are made in regard to to the ruins on the Potrero de las Casas.

Between the Cañada of the Cuesta Colorada and what is called the Cañada de Cochiti the distance in a straight line is hardly ten miles. But no less than three high mesas,[1] separated from each other by deep cañons, intervene. They are all waterless, and covered with thickets and groves of tall pines. They jut out from the foot of the high mountains like narrow tongues, terminating, at an average distance of two miles from the Rio Grande, in towering cliffs of light-colored volcanic rock. These cliffs appear like pillars, or gigantic posts; hence their Spanish name "Potreros." The one forming the southern wall of the Cuesta Colorada gorge is an extensive plateau called Potrero Chato, or Capulin, and on its top are many ancient remains. A number of small houses are scattered over it, and near the foot of the Sierra San Miguel lie the ruins of the pueblo shown on Plate I. Figure 13. It stands on a bald eminence, from which, as from the Potrero de las Vacas, an extensive view is obtained in all directions except the west and north. The village consisted of five separate buildings disposed around an open square; and its population must have been at least two hundred souls. I saw two estufas outside of the square, one of which measured seven, the other thirteen meters in diameter (23 and 42 feet). Fifty meters southeast of the ruin lie the remains of a large artificial tank. The pottery is mostly coarsely glazed, older kinds being rare. This pueblo the Queres of Cochiti call Ha-a-tze (earth), which seems to be its original name; but they also apply to it the term Rä-tye Ka-ma Tze-shuma (the old Houses at the Rabbit), evidently a more modern appellation. They emphatically claim it as one of the former abodes of their tribe, after they had left the Potrero de las Vacas.

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[1] The orography of this part of the Valles chain is imperfectly known. The nomenclature varies greatly according to the source whence it is obtained. Thus the Potrero Chato is frequently called Capulin, and its upper part is termed Potrero de San Miguel. As it is three-lobed, the three lobes bear different local names. Between them lie, from north to south, the Cañon Jose Sanchez (Tyesht-ye Ka-ma Chinaya), and the Cañon de la Bolsa (Ka-ma Chinaya). Ka-ma signifies house, and Chin-a-ya torrent, or mountain gorge in which runs a torrent. South of the Potrero Chato is the Potrero Largo, with two additions, of which the eastern one is called the Potrero de los Idolos (Shkor-e Ka uash, or round mesa).

Of the small houses scattered over the surface of the mesa, between this pueblo and the eastern end, I have examined a number. The majority are nearly square, have but one room, and measure 2, 3, and 4 by 4 meters (6½, 9¾, and 10 by 13 feet). The potsherds found in these places are all of the older kinds: white with black decorative lines, and corrugated. My Indian companions, as well as the old men of Cochiti, whom I repeatedly consulted in regard to them, affirmed that nothing positive was known of their builders except that they were Pueblo Indians. They may have belonged to an older period of occupation than that represented by the Queres, or to a colony from the Rito that emigrated after the people of the Potrero de las Vacas, and who settled on the Potrero Chiato before the Queres began to scatter again.

Within the small compass of not more than a half or a quarter of a mile, the groups of ruins on the surface of the Potrero Chato represent two varieties of ancient architecture, each accompanied by a distinct type of pottery. The small-house ruins, of which the potsherds belong to the ancient kind, cannot have been merely summer ranches of the larger pueblo, in which the coarsely glazed variety predominates; for it is not presumable that the Indians used one class of earthenware in winter, and another, more perfect in material and more simply and tastefully decorated, in their temporary summer homes. Hence I consider myself justified in concluding that there were two distinct epochs of occupation, the most recent of which was certainly by the Queres. Wherever the caves stand without pueblo ruins in their immediate vicinity, they show almost exclusively the old kinds of potsherds, the black and white, or gray, and the corrugated. This would seem to indicate that the artificial caves and the small houses belong to one and the same period, anterior to that of the construction of many-storied pueblos. The Indians merely say that all these ruins are those of Queres villages, insisting at the same time that the pueblos were built by that branch of the former inhabitants of the Rito de los Frijoles, and of its cave dwellings, which subsequently became the tribes of Cochiti and of San Felipe.

The buildings on the Potrero Chato, whether large or small, are made of blocks of tufa like those previously described. The walls of the pueblo of Ha-atze seem particularly well built and well preserved. The small houses are reduced to mere foundations and rubbish.

The soil on the surface of the Potrero is fertile, but there is no permanent water; hence the necessity of the artificial tanks. Precipitation, as already stated, is sufficient in ordinary years to permit the growth of Indian corn, beans, and squashes. Game was abundant in olden times, and is not unfrequently encountered to-day, — principally deer, bears, and turkeys.

Plate IV. — The Panther Statue on the Potrero de los Idolos.

The Indians assert that the higher parts of the Sierra contain no ruins, and I have every reason to believe their statement. I am also certain that no ruins exist between the eastern foot of the Potreros and the Rio Grande. The nearest vestiges of antiquity found to the south of the Potrero Chato are in the Cañada de Cochiti, on the Potrero Viejo, and on the Potrero de los Idolos.

The last is a small round mesa, called in Queres Shko-re Ka-uash, which rises above the Cañada of Cochiti like an easterly spur of the long Potrero Largo that flanks that valley in the north. Its height above the valley is 94.8 meters, or 304 feet, and the summit is oblong, and mostly covered with scrubby conifers. On the open space are the remains of two images of panthers, similar to those on the Potrero de las Vacas. One of them is completely destroyed by treasure hunters, who loosened both from the rock by a blast of powder, and then heaved the ponderous blocks out by means of crowbars. After breaking one of the figures to pieces, they satisfied themselves that nothing was buried underneath.

The other image, although somewhat mutilated, is still in a better condition than those on the Potrero de las Vacas, as the rock out of which it is carved is much harder, and has consequently resisted atmospheric erosion far better. Its size is very nearly that of the two figures formerly described. (See Plate IV.)

The imperfections of the sculpture are very apparent; were it not for the statements of the Indians, who positively assert that the intention of the makers was to represent a puma, it would be considered to be a gigantic lizard. Still, there can be no doubt that it is Mo-katsh, the panther fetich of the Shya-yak (or hunters) of some Queres tribe. There are also the remains of a stone enclosure similar to that on the Potrero de las Vacas; and a stone post still erect measures 1.32 m. in height (4 ft. 4 in.). A slab lying on the ground near by, and with one end broken off, is 1.58 m. (5 ft. 3 in.) long. Both stones show marks of having been rudely dressed with stone implements, but there are no traces of ornamental carvings. A number of smaller slabs and blocks also lie scattered about.

There is no pueblo ruin, at least to my knowledge, in the immediate vicinity of the Potrero de los Idolos, and I was repeatedly told that the Potrero Largo had no traces of antiquities on its summit. But the ancient Queres pueblo of Kua-pa lies a little over one mile to the southwest, in the valley or cañada, and my Indian informants asserted that the inhabitants of Kua-pa had made the sculptures.

The existence of two sets of images of the panther fetich in the same region, carved in former times by people of the same linguistic stock, and probably of the same tribe, although at different dates, indicates that both places were merely local shrines. The explanations of the aborigines also prove that the statues were not "tutelary deities" of the villages near which they are situated, but simply fetiches of exceptional size, belonging to the circle of worship of one of the esoteric clusters. This may throw some light on the real part played by larger idols in the rites and ceremonies of tribes farther south, as in Mexico, where secluded shrines were frequent, on mountain tops or in forests.

I have not found any allusion in the old writers about New Mexico to places of worship like those just described. Stone enclosures are however mentioned incidentally, and Torquemada[1] speaks of sacrifices performed early in the morning by the women at "rude stones," which I infer were placed outside of the pueblos.

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[1] *Monarchia*, vol. I. p. 681. The same author, however, speaks of "Demonios," who appeared to the Indians outside of their villages "Nombran á tres Demonios, que les aparecen a estos piden agua; al vno llaman Cocapo, al otro

This silence of older authors may prove instructive. Had the early Spanish settlers, and especially the missionaries, known of these sculptures, they would have recorded it. It is true that all the church documents anterior to 1680 are lost, still some trace would be found in works like those of Zárate-Salmeron, Benavides, or Vetancurt. This shows that the rites performed in connection with the images, while certainly continued as they are still performed to-day, were no longer as frequent; and that the places had begun to lose their vital hold on the minds of the people before the Spaniards entered the country. They were still shrines, as they are to-day for the people of Cochiti, but no longer in regular use. This may be an evidence of great antiquity, for the Indian clings to places of this kind with strong tenacity for many generations, regardless of their distance from his home.

Another inference may be drawn from the existence of two sets of images in two distinct localities. It corroborates the Cochiti tradition that they were made by the same people, but implies that the sculptures on the Potrero de los Idolos were made after those on the Potrero de las Vacas. The Indians state that the village of Kua-pa was built by their ancestors after the pueblo on the Potrero Chato had been abandoned, and that it was consequently their third station after the evacuation of the Potrero de las Vacas.[1] Indeed, the tales of historic import are more positive and detailed

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Caçina; y al otro Homace; los dos vltimos, les aparecen en el Campo; en la figura que quieren." Torquemada is here speaking of the Tehuas. "Caçina" is what to-day is called Ka-tzin-a, or the spirits of game in the clouds. To this kind belonged the images of the panthers, as fetiches.

[1] Counting the settlements in the Cuesta Colorada as the first, and the pueblo on the Potrero San Miguel (Ha-a-tze) as second. About the ruins on the Potrero de las Casas I am not positive.

in regard to the ruins in the Cañada de Cochiti, showing that the past of these places is less remote than that of the more northerly ruins.

The valley of the Cañada is broad and open in comparison with the gorges of which I have had to speak before. It is a sunny vale, sandy, protected on the north by tall potreros, and bordered on the south by gentle slopes dotted with junipers and cedars. Through it flows a stream, the waters of which are permanent. In the east a sombre gateway of lava and basalt affords egress to the Rio Grande. In the west rise the pine-clad slopes and crests of the Sierra de la Bolsa, and in front of them a high and narrow projection or cliff, called Potrero Viejo; by the Queres, Hä-nat Kot-yi-ti. The sides of this mesa are of bare rock, a tufa merging into pumice-stone, and the ascent to the top is steep and laborious. The summit is wooded, and perhaps two miles long. From it expands a wide view, and the little houses of the hamlet of the Cañada appear tiny at a depth of nearly five hundred feet below. The ruins of Kua-pa lie about a mile and a half lower down the valley than the present Mexican settlement,[1] midway between the Potrero Viejo and the Potrero de los Idolos. They occupy a low bluff between the stream on the north and a dry gulch on the south, and are very much decayed, many of the mounds being barely distinguishable. I am positive of the existence of five circular estufas, but there may be at least two more. The pueblo seems to have been large, and the potsherds belong to the coarsely glazed, the corrugated, and the ancient black and white and red and black kinds. The last are represented in larger quantities than is usually the case in ruins where the glazed variety prevails.

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[1] The grant of the lands in the Cañada de Cochiti constitutes the original title to the site. This grant was made in 1728, by Governor Don Juan Domingo de Bustamante. *Merced de la Cañada de Cochiti*, MS. In the year 1782 the Cañada was inhabited by 184 Spanish settlers. Morfi, *Descripcion Geográfica*, fol. 104. In the first half of this century the Navajos became so troublesome that the settlers had to abandon their homes for several years, fleeing to Cochiti. Some of the older men now living were among those who remember those dismal times, and many ruins of Spanish ranches bear testimony to the depredations of the savages. In 1833 the Cañada was inhabited by 408 people. Francisco Albino Aragon, *Plano que manifiesta el Numero de Almas que hay en esta Alcaldia de S. Buenaventura de Cochiti*, MS. To-day there are about 150 souls; in 1829, there were 248. José Manuel Baca, *Estadística*, MS. The Cañada was temporarily abandoned in February, 1835. Jesus Maria Cabeza de Vaca, *Carta al Gefe Político*, April 9, 1835, MS.

The ruins of Kua-pa look much more ancient than any of those on the potreros; but this is due to the material of which they are built. In place of blocks of tufa, loose rubble and adobe formed the bulk of its walls. Adobe disintegrates rapidly, and rubble forms heaps of disorderly rubbish. The ancient appearance of Kua-pa cannot therefore be relied upon against the testimony of historical tradition. Both the Indians of Cochiti and the inhabitants of the Cañada, who are well versed in Indian folk-lore concerning their valley, have asserted to me that Kua-pa was an old village of the Cochiti tribe, from which they moved to the banks of the Rio Grande where Cochiti stands to-day. The descendants of Spaniards living at the Cañada also confirmed the more ancient Cochiti tradition, saying that the Queres had successively built pueblos on the potreros between the Cañada and the Rito de los Frijoles, finally establishing themselves at Kua-pa. They attributed this gradual southerly movement of the Queres tribe to the persistent hostility of their northern neighbors, the Tehuas.

In regard to this the Cochiteños only state that the village of Kua-pa was once attacked by the Tehuas and captured. The survivors retreated to the Potrero Viejo; the Tehuas pursued, but their attack upon the lofty cliff signally failed. They were defeated and driven back across the Rio Grande, many of them are said to have perished in that river, and the Tehuas never troubled the Queres again. In consequence of these hostilities, the survivors established themselves on the potrero for a short time, whence they descended to settle where Cochiti stands to-day.

The attack and devastation of Kua-pa by some hostile tribe is further told in the traditions of the Queres village of Ka-tisht-ya, or San Felipe. According to these, while the Queres lived in the Cañada, a tribe of small men called Pin-i-ni attacked Kua-pa, slaughtered many of its people, and drove off the remainder. They were pursued by the pygmies as far as a place above Santo Domingo called Isht-ua Yen-e, where many arrow-heads are found to-day.[1] I reserve the full details of the San Felipe tradition for a later occasion, and will only state here that the Pinini story is told by the Cochiteños about the village on the Potrero de las Vacas.[2] It seems probable that the branches of the Queres now constituting the tribes of Cochiti and San Felipe once formed one group at Kua-pa, that some hostile invasion caused their dispersion, one branch retiring to the south, while the other took refuge on the Potrero Viejo and built a temporary village at least on top of this almost impregnable rock. I regard it as not at all unlikely that the aggressors were Tehuas, since this has been told me by the people of Cochiti on many occasions.[3] The settlers at the Cañada emphatically confirmed these statements, as having been told ever since their ancestors settled there by the old men of Cochiti as genuine traditions of their tribe. At all events, the valley of the Cañada and its surroundings were the last station of the Queres of Cochiti, and probably of San Felipe, before they established themselves on the banks of the Rio Grande.

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[1] From Isht-ua, arrow. This part of the story is possibly a "myth of observation."

[2] The name Pinini is a corruption of the Spanish Pygméos. The Spanish-speaking inhabitants of New Mexico usually pronounce it Pininéos, whence the Indians have derived Pinini. The tale about these dwarfish tribes, described as "small but very strong," looks to me quite suspicious. I incline to the simpler but more probable story that the Tehuas were the aggressors.

[3] But when Diego de Vargas visited the Potrero Viejo for the first time, on October 21, 1692, the Queres of Cochiti and San Felipe, and the Tanos of San Marcos, who occupied the pueblo on its summit, informed him that they had fled

The Potrero Viejo is a natural fortress, almost as difficult to storm as the well known cliff of Acoma. In case of necessity, a small tribe could dwell on its top for years without ever being obliged to descend into the valley beneath; for it is wooded and has a limited area of tillable soil, and natural tanks. Only from the rear or southwest is the ascent over a gradual slope; from the front and the north the trails climb over rocks and rocky débris in full view of the parapets, natural and artificial, that line the brink of the mesa.

Two classes of ruins occupy the summit, one of which is the comparatively recent pueblo given on Plate I. Figure 15. It is two stories high in some places, very well preserved, and built of fairly regular parallelopipeds of tufa. The woodwork in it was evidently destroyed by fire, and much charred corn is found in the ruins. The average size of 118 rooms on the ground floor, which are all in the pueblo with the exception of about ten, is 5.0 by 2.8 meters (16 ft. 5 in. by 9 ft. 2 in.). This is a large area in comparison with the size of older ruins. I noticed but one estufa, and the pottery bears a recent character.

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thither out of fear of their enemies, the Tehuas, Tanos, and Picuries. *Autos de Guerra de la Primera Campaña á la Reconquista del Nuevo México*, fol. 141, — a manuscript in the Territorial archives in Santa Fé. It is true that the Queres and Tanos, possibly also the Tehuas, were in open hostility during the time the Spaniards were away from New Mexico from 1680 to 1692. But still the truth of their statements to Vargas may be subject to doubt. It is quite as likely that they retreated to the mesa after the successful raid of Pedro Reneros Posada upon Santa Ana in 1687.

There are also traces of older ruins, which mark the existence of small houses, similar to those on the Potrero Chato and on the Tziro Kauash, or Mesa del Pajarito. Possibly these smaller houses are traces of the first occupation of the Potrero Viejo by the Queres.

The Cañada de Cochiti, and especially the Potrero Viejo, was quite an important spot in the history of New Mexico between 1680 and 1695.

It seems certain that when the Spaniards began to colonize the country in 1598 the village of Cochiti stood on the banks of the Rio Grande, almost where it now stands.[1] After the bloody 10th of August, 1680, and the evacuation of New Mexico by Governor Antonio de Otermin, the people of Cochiti remained in their village for fifteen months, until the Pueblos received information that Otermin had again entered New Mexico and surprised the village of Isleta, capturing nearly all its inhabitants. Thereupon the Rio Grande Queres retired to the Cañada.[2] Otermin, remaining in camp at Isleta, despatched the Maestro de Campo Juan Dominguez de Mendoza, with sixty men, on the 8th of December, 1681, with orders to penetrate as far north as possible.[1] All the pueblos on the Rio Grande were found deserted, and a few old Indians, whom the Spaniards discovered on their march and interrogated, said that the Queres of San Felipe, Santo Domingo, and Cochiti had removed to the "mountains of the Cieneguilla," or "mountains of Cochiti." Mendoza proceeded as far as Cochiti, which he found deserted, though filled with stores of food. He soon discovered that the reports were true, and that the Queres, reinforced by some Tehuas, Taos, and Picuries, had gathered on the mesa or Potrero Viejo above the Cañada. On the following day, he marched against them, but was met on the road by several hundreds of the Indians in arms, and long parleys ensued, resulting in a truce of three days, at the expiration of which the insurgents promised to return to their homes peaceably

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[1] I infer this from the statements of the Indians themselves, although I have no positive documentary information on this point earlier than 1680, or possibly 1660. Cochiti is first mentioned on the 7th of July, 1598, in the *Obediencia y Vasallaje á su Magestad por los Indios de Santo Domingo* (Doc. de Indias, vol. xvi. p. 102 *et seq.*). It appears in the orthography which has since remained. Again it is found as "Chochiti" in the *Obediencia de San Juan Baptista*, p. 114. Vetancurt, who gives a description of all the pueblos as they were prior to the rebellion of 1680, says (*Crónica*, p. 322): "Está al lado izquierdo del Rio del Norte, tres leguas de Santo Demingo." This is also proved by the *Ynterrogatorio de Preguntas*, 1681, MS., and by the Journals of Vargas, *Autos de Guerra de la Primera Campaña*, fol. 142. Vargas returned from the Potrero Viejo to the abandoned pueblo of Cochiti on the Rio Grande. *Autos de Guerra del Año de* 1694, MS., fol. 119: "Salió de la mesa y llegó á Cochitti el Viejo que despoblaron los Reueldes alzados que se hallaban poblados en la sussodha Messa de la Zieneguilla." The documentary information is slight, but I believe that the testimony of the Indians is almost conclusive.

[2] *Interrogatorios de varios Indios de los Pueblos Alzados*, December, 1681. MS., fol. 126. One Tehua Indian testified: "Que el dia que se cercó el pueblo de la Isleta andaban de esta vanda del Rio del Norte dos Indios naturales del pueblo de Puaray, los quales así que vieron á los Españoles, vinieron avi-

sando á su pueblo, y á otros, y de pueblo en pueblo corrio la voz diciendo que los Españoles habian muerto á los naturales del pueblo de la Isleta, y preso á todos los forasteros de otros pueblos que habían ido á buscar maiz, con cuya ocasion desampararon los pueblos la gente de la Alameda, Puary, Zandia yendose á la sierra, y los de San Felipe, Santo Domingo, y Cochiti á la Sierra de la Cieneguilla." Also *Ynterrogatorio de Preguntas*, December, 1681, MS. Juan Dominguez de Mendoza states that an old Indian of San Felipe told him: "Al qual le preguntó en su lengua por la gente del pueblo, y respondió haberse ido huyendo á la Cieneguilla, ó Pueblo de Cochiti."

[1] I gather these details from the *Ynterrogatorio de Preguntas*, MS. Seven Spanish officers were interrogated, and their depositions agree, except in the estimates of the numbers of the Indians, which vary between 150 and 1,000. The majority of deponents give the number at about 400. The Spaniards advanced to within about four miles of the Potrero. The leaders of the Indians were Alonzo Catité, a mestizo of Santo Domingo, and a certain Ollita of Cochiti; afterwards, Luis Tupatu of Picuries also arrived. The offers to return to allegiance may have been sincere on the part of many, but the chiefs and medicine-men prevailed. The plan of the Indians was to send a number of girls to the pueblo of Cochiti to entertain the Spaniards, while the men fell upon the pueblo in force. All these details were confirmed by the Indians themselves in their depositions taken on the 19th and 20th of the same month (December, 1681). In respect to the plan of using girls for the proposed surprise, one Indian witness is

and submit again to Spanish rule. The truce expired, and the Indians failed to comply. Mendoza received information that they intended to surprise him, and, as his force was too small for an offensive campaign, he retreated to the vicinity of Puaray, whither Otermin had advanced in the mean time. The enemy cautiously followed him, hoping to find an opportunity to stampede the horses of the Spaniards; but they had been warned and were on their guard, so that the Indians effected nothing, and soon retired again to the mountains.[1]

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very circumstantial and positive: "Que vido en la junto que habían hecho los dichos apostatas en la Sierra de la Cieneguilla, que trataban hacer una paz fingida con los Españoles que fueron allá al cargo del teniente general de la caballeria para matarlos dormidos, y para ello dispuso el dicho Cabeza, Alonso Catité, que se labasen y afeytasen las muchachas mas bonitas, para que bajasen al pueblo de Cochiti á provocar a los Españoles á torpeza, y este declarante se halló presente al tlatole, y oió que les mandaron que aunque fuese de valde ocurriesen al gusto y que el dicho Alonso Catité, an- de los Españoles, y las vido labar y componer, daba previniendo la gente, para que aquella noche estaneo durmiendo los Es- pañoles con ellas, fueren entrando los Indios con garrotes, para matar á los Españoles, y otros arrojarse á quitarles la caballada, que con eso les acabarían, y con este pretexto mandaron venir con pena de muerte á los demas Indios que habían quedado en los pueblos para que ayudasen á lo determinado, y estando y a para bajar las muchachas vieron venir un trozo de Españoles hazia el dicho pueblo, sin haber salido ninguno mas, se aterraron y sorprendieron." (fol. 140.) Another Indian deposes (fol. 131) that Catité sent word to the gather- ing of Indians of whom Tupatu and Ollita were the chief men: "Que ya tenta tratado de engañar á los Españoles con paz fingida disponiendo enviar al Pueblo de Cochiti todas las Indias mas bonitas afeytadas, y limpias para que con pretexto de que bajaban á hacer de comer á los Españoles los provocasen á caer en torpeza, y á la noche estuviesen con ellas, bajar el dicho coyote Catité, y con la gente de toda la nacion Queres, y Xemes tratando platica solo el dicho Catité con los Españoles, á un grito que el diese se avalanzasen todos á matar á los dichos Españoles, y que dió orden que todos los demas que estaban en la otra junta donde asistian el dicho D. Luis, y el Ollita, se arrojasen á un tiempo á la caballada, para concluir con uno y otro, y hallandose este declarante presente á todo, se determinó á venir á avisar á los Españoles como lo hizo, con que se pusieron en arma, y los dichos Indios se boluieron á subir á las cumbres de la sierra, y los Españoles se retiraron." The same witness adds: "Que se viva con cuidado, porque han tratado los traidores de juntarse todos é ir en seguimiento de los Españoles hasta el pueblo de la Isleta, arrojandoseles de noche y quitandoles la caballada, que en quedando á pie, no valian nada, y los matarían."

After the retreat of Otermin to El Paso del Norte, the Queres reoccupied their pueblos on the Rio Grande, and it is stated that in 1683 all the villages, from San Felipe northward, were inhabited, and none of the tribes were living in the mountains.[1] The well preserved pueblo on the Potrero Viejo must therefore have been constructed *after* that year, and previous to the fall of 1692,[2] when Diego de Vargas made his first appearance in New Mexico.

I need not enter into the details of that brilliant dash, accomplished without any bloodshed; suffice it to say, that on the 21st of October Vargas reached the foot of the Potrero with about sixty soldiers. On the day before, he had met delegates of the Cochiti tribe, and come to a peaceable understanding with them. He ascended to the top, and found the new pueblo to consist of "ten quarters, and another large one fortified." The inhabitants were composed of the Indians of Cochiti, San Felipe, and San Marcos. They all promised to return to their allegiance, and presented for baptism one hundred and three children, born since the uprising of 1680, who had consequently not been baptized. Vargas, satisfied with the promises of the natives, returned to Cochiti on the same day.[3]

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[1] *Declaracion de vn Yndio Pecuri que dixo llamarse Iuan*, MS.: "Y que ninguna mesa ni cierra no se á fortalecida á biuir gente ninguna que solo quando entró el Sr. Govor y Capitán Genl con los Españoles se fueron á las sierras los Teguas y otras naciones y que quando se retiró . . . y la jente se bajaron á sus pueblos." According to the same Indian only the following pueblos had been abandoned: "Sandia, Alameda, Puarai, Isleta, Sevilleta, Alamillo, Senecu." None of these belonged to the Queres.

[2] It should not be overlooked that the raid made in 1687 by Pedro Reneros Posada as far as Santa Ana, and especially the expedition of Domingo Gironza Petriz de Cruzate as far as Cia in 1688, may have caused the permanent establishment of the Cochiteños on the Potrero Viejo. The affair at Cia was a bloody one, and placed the Pueblos west of the Rio Grande in imminent danger.

[3] *Autos de Guerra de la Primera Campaña*, fol. 141: "Diez quarteles y otro de presidio grande en ella." I have taken "presidio" in the sense of a fortification, or barracks; it also means a certain kind of prison in the South-

But only the Queres of San Felipe proved to be sincere. When Vargas returned to New Mexico in 1693, he found them on the banks of the Rio Grande, anxiously awaiting his coming, but the people of Cochiti and of San Marcos had remained on the formidable Potrero, and they were now threatening their kindred of San Felipe with dire punishment for their fidelity to the Spaniards.[1] Vargas soon found out that the pueblos, San Felipe, Santa Ana, Cia, and Pecos excepted, had broken their pledges, and were planning to destroy him.

How the leniency which the Spanish governor showed in presence of this manifest treachery was rewarded by the Tanos of Santa Fé, and how Vargas was at last compelled to resume military measures, does not belong here. By new year's day of 1694, hostilities had commenced in every

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west. Escalante, in what I have elsewhere entitled *Relacion Anónima del Nuevo Mexico* (p. 132), makes the date the 20th, but I follow the Journal of Vargas, fragments of which are at my command.

[1] *Autos de Guerra de la Segunda Campaña*, 1693, MS., fol. 19. On the 12th of November an Indian from San Felipe came to see vargas. "Y me dijo que estaban gustosos los naturales del dho su pueblo y que ya estauan para despoblarse los del pueblo de Santana y con la notizia de mi venida se auian estado quietos por tenerlos ynquietos los Xemes, Teguas y Tanos que estaban para entrar á destruirlos." Fol. 21: "Que el capitán Malacate auia dejado su pueblo de Zia, desde que empezó el flote se auia pasado á la Zienega de Cochiti con los Yndios Queres que en ella viuen que este ynduzía á los Yndios no diesen la paz ni fuessen amigos de los Españoles." Fol. 25: "Y se allá viuir en compañia de los Yndios Queres de Cochiti en la mesa de la Zieneguilla." On the 15th of November Vargas was alarmed by the news brought by an Indian woman from Cochiti: "Auer ydo á dho su pueblo y mesa de la Cieneguilla unos Yndios de á cauallo con todas sus armas, Teguas y Tanos los quales auian dho á todos los capitanes y demas jente de dha mesa que bajasen todos con sus armas que ya se hallaban juntos y preuenidos todos ellos los dhos Teguas y Tanos y asimismo se allaban en su compañia los Yndios de las naziones de los Taos y Pecuries y Apaches del Rio Colorado y Nabajoes, todos los quales los auian dejado en el pueblo de la Cieneguilla y salian ya para el de Sto Domingo donde les aguardauan para darme albazo á mi dho Gouor y Capitán General." Nothing occurred, although the fact of the conspiracy is well established. Vargas visited the Cañada and was well received. Escalante, *Relacion Anónima*, p. 140.

direction. The pueblos of San Felipe, Cia, and Santa Ana were clamoring to Vargas for assistance against the Jemez, the Queres of Santo Domingo, who had joined them, and the people of the Potrero Viejo. The Governor had first to march against the rebellious Tehuas at San Ildefonso.

Failing in his attempts to take the formidable "Black Mesa" by storm, he returned to Santa Fé, where he found a pressing message from his allies among the Queres, beseeching him to come to their assistance. He accordingly left Santa Fé on the 12th of April, with seventy soldiers and twenty armed colonists, to march against the Potrero Viejo,[1] and took the road to San Felipe, where he was reinforced by about one hundred warriors from that village, Santa Ana, and Cia. Leaving San Felipe on the 16th of April in the afternoon, he reached the Cañada de Cochiti about midnight. A council of war was held at once, and in it the war-captain of Cia, Bartolomé de Ojeda gave a description of the cliff and of the three trails leading to the summit. The enemy were on their guard; and fires burned along the upper edge of the mesa, showing that pickets were watching the approaches. The Spanish camp had been located where it could not be descried from the Potrero.[2] Vargas divided his force into four bodies. Captains Juan Holguin and Eusebio de Vargas, with forty men and one hundred Indians under Bartolomé de Ojeda, took the long but easier trail that reaches the mesa from the southwest. That trail was used by the enemy for bringing their sheep and horses to the summit. Captain Roque Madrid with another detachment was to storm the Potrero from the front. Adjutant Barela with ten soldiers guarded the third trail, which descends to the brook in the Cañada on the northern foot of the cliff, and Vargas himself took his post between the last two sections, with a small number of men. Madrid had the most difficult task, as the ascent from the east is very steep and over bare rocks. It was moonlight, and the enemy could inflict heavy loss by merely throwing stones upon the assailants.[1]

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[1] *Autos de Guerra del Año de* 1694, fol. 86. He reached San Felipe on April 15 (fol. 88). Escalante (*Relacion*, p. 155) gives incorrect dates, and is very brief. He only says: "Y con la otra marchó para la Cienegui el de Cochiti el dia 14 ó 15 de April, é incorporandose con los dichos Queres amigos, en dos avances ganó la mesa." Even the last statement is not correct, since Vargas, as will be seen hereafter, took the mesa at the first assault.

[2] Ibid., fol. 90, 91: "Hize alto por ser entre onze y doze dela noche y hallarse avistado de la dha messa y por no ser sentido del enemigo qe por sus lumbreras qe en ella tiene se rreconoze tener puestas sus zentinelas, y asi para aguardar ora y rremudar cauallo la dha gente hizo alto orilla de vna barranca y arroyo." April 17, fol. 91: "Al salir de la luna y dos de la mañana hauydo aguardado á dha ora yo dho Gour y Cappn Genl y hauiendo resuelto y conferido con los dhos Cauos y el Cappan de los Queres y mi compadre Barme de Ojeda las suvidas qe la dha Messa de la Zieniguilla de Cochitti tenía. Pués

About two o'clock in the morning of the 17th of April the advance began from the east, while the body guided by Ojeda had already begun to creep up in silence, and unnoticed by

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los Yndios reueldes de dha nazion ye pueblo nueso de Cochiti la Tenian Toda con sus trincheras y hoyos qe llaman trampas, para no obstante siendo ella por si sumamte empinada y derecha y juntamte toda de peñas queria qe la hazia ynexpugnable se reconozio por el dho del dho Cappan Barme de Ojeda tener por vn costado dha messa vna suvida. Siendo la que está mas fazil respecto de ser la que trajinan con sus vestias y ganados, de ser la mas corryte para por ella darsela al dho enemigo mucho daño, por podersele cojer las espaldas y la otra suvida tamuien la tenían estrabiada al otro frente para bajar al embudo y ojo de agua de donde se abastezen." I copy this on account of the very correct description of the different ascents to the Potrero. The location of the Spanish camp must have been below the present settlement in the Cañada, probably near the ruins of Kua-pa.

[1] Ibid., fol. 91: "Y diessen el dicho asalto mientras al mismo tiempo le daua el Cappan y Cauo Roque Madrid por la suvida dha y prinzipal de dha messa." The Adj. Diego Barela occupied the foot of the northern trail, with ten soldiers. "Como asimismo para el asalto por dho rumbo y el otro trozo con las caualladas, quedando asimismo en la ladera y suvida de dha messa, yo dho Gouor &ca, para si el enemigo se despeñase por ella ó bajaba por dha banda qe es la qe tienen y asimismo para estar en dho puesto á socorrer los dhos referidos como el de la caualladas y tren."

the enemy. They, however, soon discovered the detachment under Roque Madrid, and made a fierce resistance; but the Spaniards toiled on, replying with the slow musketry firing of the period to the showers of stones and arrows from above. The handful of men on the north side of the Potrero also made demonstrations of attack, and so diverted some of the enemy to that side, when suddenly the forty soldiers and the Indian allies appeared on top of the mesa in the rear. The news of their arrival before the pueblo itself caused the defenders on the parapets to scatter at once; some sped to the rescue of their homes and families, but the majority fled through the forest. Some resistance was still offered at the pueblo, but it was fruitless, and by sunrise all was over. Twenty-one Indians perished in this engagement. On the side of the Spaniards four men were wounded, but none killed. Three hundred and forty-two women and children fell into the hands of the victors, together with seventy horses and more than nine hundred sheep. A portion of the spoil was given to the Indian auxiliaries.[1]

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[1] Ibid., fol. 91, 92: "Y en esta disposizon se zerro y se dió asalto, de suerte qe el enemigo se pusso en arma, haziendo su rresistenza y bateria por la dha suvida donde me hallaba y el sussodho capitán, ofiziales de guerra y otros soldados de valor le correspondian con repetidas cargas suviendo. . . . A dha messa al mesmo tiempo qe los dhos capitanes de campaña y gentte de guerra amiga le zerraron las espaldas, cuya carga le obligó y berse por los dhos tres angulos y suvidas combattido, le obligó á la gentte de afuera á no aguadar la despedazassen y matassen la nuestra y asi se pusso en fuga, tomando diferentes veredas y breñas tenydo á su fauor las dhas peñas y estalaje pedregoso, y viendosse con el desamparo y fuga el dho enemigo de la dha gentte qe en su fauor hauia venido de socorro siguió la mesma fuga rretirandosse, dando algunas cargas qe los nuestros repararon con sus chimales y apoderados de la dha plaza y pueblo y messa, lo hizieron algunos de las cassas y trincheras por cuyas troneras algunos de los dhos reueldes tubieron lugar de herir á quatro de dho campo, aunque no peligró ninguno el perder la vida." Seven Indians were killed in the engagement, and one was suffocated in one of the lower rooms of the pueblo by the Indian allies. "Vno qe se quemo, pegandole fuego en vna cassa la gente amiga sin aguadar a rromper la pader del sotano de ella á el qual se hauía bajado." Thirteen were taken with arms in their hands, and executed on the spot.

A considerable quantity of Indian corn in ears was found in the pueblo, which was a precious resource for Vargas, as maize was excessively scarce; for the Spaniards had not had time to plant, and the hostile Pueblos took good care to conceal or remove their stores of grain. In order to facilitate the transportation of this corn to Santa Fé, where it was greatly needed, Vargas ordered the prisoners to shell it on the spot. This compelled him to remain longer on the Potrero than he had intended. By the 20th of April the corn was ready, and the bulk of the Spanish force was sent off to get beasts of burden, and to reinforce Santa Fé, which in the mean time the Tehuas had attempted to surprise. The captives were retained on the Potrero under guard, confined every night in the estufa. Not more than thirty-six men were with the Governor, for the Indian allies had departed on the very day of the assault to protect their own homes.[1] On the 21st, at two o'clock in the afternoon, when the Spaniards thought themselves perfectly secure, the enemy suddenly made a furious attack upon the pueblo, having crept up from the west through a narrow pass where the cliffs behind the Potrero and the woods had concealed their approach. The Spaniards flew to arms, and succeeded in beating off the enemy with the loss of only one man on their side, and of four of the Indians. But during the confusion caused by the surprise more than one half of the captive girls and boys escaped. This was what the assailants principally desired to achieve, and seeing the determined resistance of the whites, and disheartened by the loss of one of their leaders, they retreated as precipitately as their onslaught had been violent and unexpected.[2] On the 24th,

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[1] *Autos de Guerra*, fol. 94, 104.

[2] Ibid., fol. 105: "Tubo el arrojo de dar suviendo por vno angostura en dha mesa qe siendo tan ynmediatta fue repentina su enttrada con furiosos alaridos

Vargas at last evacuated the Potrero, with his booty in corn and with the remnant of the captives. Before leaving, however, he set fire to the pueblo, together with all the grain that could not be taken along, "in order that the aforesaid rebellious enemy might not find any sustenance in it, nor be able to take up his abode without being compelled to rebuild."[1] The intentions of Vargas were fully realized, for the Potrero Viejo was never occupied again.

In this description of the storming of the Potrero Viejo I have followed Vargas's own narrative, which is in conformity with the Indian traditions, as well as with the account of the event given by the settlers of the Cañada. I was repeatedly shown the different trails, and I find the report of the Spanish commander to be very exact and graphic. The condition of the ruins resembles that of a pueblo destroyed by fire, and there is considerable charred corn to be seen. As in every other instance where I have compared the Spanish documents with the localities, and with current tales, I have

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y gruesso numero de gentte, qe se diuidieron entrando por los puestos de dhas dos Plazas y los demas de partte de afuera, zercando dho Pueblo y quartteles y aunque fue al parezer á las dos de la tarde la mesma seguridad de la ora tenia á la dha gentte desarmada sin sus queras." The leader of the Indians who lost his life was one Juan Griego, a mestizo from San Juan. This shows that, besides the Queres and those of San Marcos, there were Tehuas and perhaps Jemez in the fight. Escalante also gives a quite detailed report, *Relacion*, p. 160: "Cayéron en gran numero y cercaron el pueblo, pusieron á los nuestros en gran aprieto, y como los nuestros eran tan pocos, atendian y solamente á defender las bocas calles del pueblo, y asi tuviéron lugar de huir ciento cincuenta de los prisioneros: lo cual visto por los rebeldes, se retiraron juzgando que ya habian librado á todos sus hijos y mujeres." He also says that only two of the Indians were killed.

[1] Ibid., fol. 110: "Y se pegue fuego á dho Pueblo y Semillas qe en el hubiere para qu el dho enemigo rreuelde no logre en ella su susttentto ni mas hazer assientto, sin que le queste de nuebo el trabajo de su rreedifizio y ejecuttado dho orden salí de dha messa con dho campo." Escalante, *Relacion*, says that Vargas arrived at Santa Fé on the 25th of April with seventy captive women. If his statement that 150 of the prisoners escaped is correct, Vargas still had 192 left.

found them to be of great accuracy, and in substantial agreement with the traditions of the people.

I have been thus circumstantial in regard to the history of the Potrero Viejo, for the reason that the ruins on its summit are frequently spoken of as the "old pueblo of Cochiti," in the sense of the original home of that tribe. It will be seen that this is only partially correct. The oldest ruins on the mesa, which hardly attract any attention, are those of a pre-historic Queres pueblo; the striking well preserved ones are those of a village built after the year 1683, and abandoned in April, 1694.

A distance of six or seven miles in a southeasterly direction separates the Potrero Viejo from the present pueblo of Cochiti. The several roads and trails leading from that village to the Cañada pass through a country which offers, so far as I know, nothing of archæological interest.[1] It is a series of hills covered with the usual vegetation of scrubby conifers. The rocks are a very friable volcanic tufa, and are mostly covered by a mantle of sand produced by the rapid disintegration of the lower strata. Picturesque erosion is seen along the most westerly of these trails. These hills begin to recede from the Rio Grande, at a distance of about five miles from the Cañada, leaving a bleak expanse in the shape of a segment, and on the southeastern end of it, north of the Arroyo de la Peralta and on gravelly bluffs above the river bottom, stands the Indian village of Cochiti. The deep groove of the Peralta is waterless except during very heavy rains, and on each side of it I have noticed outcroppings of ruins, the remains of the Cochiti abandoned by its inhabitants after the rebellion of 1680.

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[1] Artificial caves are said to exist in some of the rocks in the hills visible from Cochiti. In the lower portions of the Cañada is a low cliff famous in witchcraft stories. The people of Cochiti pretend that the wizards and witches meet there on certain nights, assembling at the cliff in the shape of owls, turkey-buzzards, and crows. At a signal the rock opens, displaying a brilliantly lighted cavity. Forthwith the animal shapes disappear, and the wicked sorcerers resume their human appearance and enter the cavern to carouse till daylight.

On the other side of the Rio Grande, within a radius of at most three miles, I have visited three ruins. The great flow of lava surmounted by the Tetilla cone approaches the river banks, and here terminates the cañon that separates San Ildefonso from Cochiti. Almost directly opposite the latter pueblo, on a rocky bluff, stand the ruins to which the Queres give the name of Tash-ka-tze, or Place of Potsherds. An irregular quadrangle, marked partly by rubble foundations, and measuring approximately 56 meters (182 feet) from east to west and 50 meters (162 feet) from north to south, and a round tower 10 meters (32½ feet) across, are its best preserved features. Twelve meters west of this quadrangle appear foundations of two sides of another one, measuring 50 meters from north to south by 31 from east to west. West of the round tower, at a distance of ten meters, stands another structure 30 meters long by 13 wide. The whole seems, therefore, to have consisted of three rectangular houses and one round tower. The latter occupies a good position for observation. The artificial objects consist of obsidian, of glazed pottery with very little corrugated, stone hammers, metates, and corn-crushers.

Some distance to the north, on a long and gravelly slope running almost parallel with the river, stands a nearly obliterated large ruin, called, in Spanish, Pueblo del Encierro. Foundations of rubble denoting smaller structures extend part of the way from its southern wall to the lower apex formed by the slanting bluff on which the ruins stand. On that apex are the remains of another rectangular building, and of a circular structure which I was told was an estufa, although I incline to the belief that it was a round tower. At the Encierro, although all the other artificial objects belong to a people using stone implements, such as obsidian and flint, are profusely scattered about, the corrugated pottery is very scarce; most of the potsherds belong to the coarsely glazed kind. Two old acequias can be descried in the vicinity, but it is doubtful if they are not of a posterior date.[1] Garden beds, enclosed by upright stones, form part of the ruins. The rubbish is about equally distributed over the whole, so that it would be difficult to determine which were the buildings, were it not for the double rows of stones set on edge 0.30 to 0.40 m. apart, that distinguish the foundations of houses from simple enclosures. The space between the two rows may have been originally filled with gravel or adobe. Although the area covered by the ruins is comparatively large, the pueblo was in fact a small one.

Still smaller ruins stand on the summit of a narrow and abrupt bluff of trap, which rises over the north bank of the Rio de Santa Fé about two miles east of its mouth, opposite Cochiti. The waters of this stream only reach the Rio Grande during freshets, but along the base of this tongue-shaped mesa they are usually permanent. The ruins consist of the foundations of a small house with an enclosure. There are also two circular depressions. The walls of the building were made of a triple row of blocks of lava, and they show a width of 0.75 m. (2½ feet). The pottery is like that at the Encierro; and flint flakes, and some obsidian, are scattered over the mesa.

The little Mexican settlement of Peña Blanca lies three miles south of Cochiti, on the same side of the Rio Grande as the ruins of Tash-ka-tze, of the Encierro, and of that on the Rio de Santa Fé. In the fields of the fertile bottom skirting the river west of the village, ruins of a pueblo were noticed by the early settlers, and a number of stone idols are said to have been exhumed. As far as I could learn, the pueblo was built of adobe, but nearly every trace of it has now disappeared in consequence of cultivation.

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[1] The acequias of Cochiti and of the Mexican settlement of Peña Blanca, three miles south of the Encierro, take their water from the Rio Grande only a short distance higher up that river. It is therefore probable that the vestiges near the old pueblo are those of old acequias belonging to the two places mentioned. The Indians could give me no information.

On one of the gravelly dunes northeast of the church at Peña Blanca, a large rectangle formed by upright stones or slabs is to be seen. Pottery, flint, and obsidian are strewn over the place, and I found a half-finished stone axe; but this rectangle looks to me rather like a garden enclosure than a former building. On the round eminence of trap and lava that overlooks the Peña Blanca valley, and around which the road from Santa Fé winds downwards like a huge serpent, faint traces of small structures exist. But I found no pottery, only flint and obsidian. The height is such an excellent lookout, and its surface so small, that I suspect it was only temporarily used as a post of observation by the people of one or the other of the neighboring Indian settlements now in ruins.[1]

The Tanos of Santo Domingo insisted emphatically that the ruins at Peña Blanca and those opposite Cochiti were not those of Tanos pueblos. South of Peña Blanca, and as far as the banks of the Arroyo de Galisteo near Wallace, there are no ruins. On the west bank of the Rio Grande, between Cochiti and the hamlet of Zile, there is said to be a cave in which the Cochiti Indians concealed their ancient idols. On that side of the river, between it and the districts of Santa Ana and Cia, I know of no ruins farther south than those on the Potrero de en el Medio, or Mishtshya Ko-te (Mountain of Ashes), and those on the Potrero de la Cañada Quemada.

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[1] The "Mesita Redonda," as this eminence is called, rises about 400 feet above the river bottom, from which it is half a mile distant in a straight line. Above the road it is at most 200 feet high. The sides, as well as the slopes behind it, are covered with débris of hard lava and trap. The surface is elliptical, measuring about 100 by 50 meters, and a wide view is commanded from the summit.

To reach these places from Cochiti, it is best to follow the sandy bottom of the Peralta torrent, going almost due west. The Mishtshya Ko-te lies north of the broad gulch, between it and the Cañada of Cochiti. It is a steep rock forming the eastern end of a towering potrero. I have not ascended to its summit, but know on good authority that on it stand the ruins of two buildings. The trail to the Potrero turns aside from the Peralta near where a dark, deep cleft, the Cañon del Ko-ye, runs into it from the northwest.[1] Between Cochiti and this point the north side of the Peralta is lined by very picturesque forms of erosion, — isolated cones of white tufa, each capped by a boulder. At the Barranco Blanco hundreds of these cones cluster together, presenting the appearance of a long border of snow-white tents.

Beyond the mouth of the Ko-ye, the gulch changes its name to that of the Cañada Quemada, and becomes a wooded gorge; but as we go farther west, it appears still narrower, and its sides higher and steeper. At a distance of twelve miles from the pueblo, a partly wooded ridge traverses it, and on the summit of this ridge, called Potrero de la Cañada Quemada, lies the ruin of which Figure 16 of Plate I. gives the shape and relative size.

It stands on a bare space near the eastern brink of the abrupt slope, protected on the west by woods. The view from there is almost boundless to the south, where the Sierra de los Ladrones and the Magdalena Mountains are distinctly visible.[1] There is no water on the Potrero, and I was at a loss to find tillable soil. Still this is no proof that the Indians who dwelt there did not have their little fields in some nook or corner, either at the foot or on the summit of the ridge. This Pueblo, with the one near San Antonio in the Pecos valley, is the most compact specimen of the one-house type which I have ever seen. There even appears to be no entrance to the small courtyard in the middle. North of this courtyard the cells are eight deep; south there are nine rows from west to east, and sixteen transversely, the whole number of rooms on the first floor being 296, and their average size about 2.7 by 3.6 meters (9 by 11¾ feet).

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[1] The Cañon del Ko-ye is a dark, narrow chasm, fearful to look into from above; towards its lower portions the rocks overhang in such a degree as almost to exclude daylight.

The walls of this structure are made of rectangular blocks of tufa, like those of the other pueblos heretofore described in this region. The rock is so soft as to break very easily into prismatic fragments, so that an approximate regularity of form could be attained without much effort, and by the use of stone implements only. The thickness of the walls is as usual, but in a few places they are thicker. Three stories are (or were in 1880) still plainly visible at the northern end. In the portion of the ruins that lies south of the courtyard two circular estufas are seen respectively 4.9 and 5.4 meters (16 and 17½ feet) in diameter. They are built in among the rooms, and I saw no doorways leading into them, which suggests the inference that a considerable portion of the building was only one story high.

Not far from this ruin is a small artificial tank large enough for the demands of a population which probably did not much exceed three hundred, judging from the capacity of the largest house at Taos. The artificial objects are the same as on the other Potreros, but glazed pottery is very scarce, as the bulk of the potsherds belong to the black and white and to the corrugated varieties. Considerable moss-agate and flint, and some obsidian, was noticed.

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[1] In a direct line, the Ladrones Mountains are 90 miles, and the Magdalenas 120 miles distant. The height of the former is 9,214, of the latter, 10,758 feet. I estimate the height of the Potrero at not over 6,500 feet, probably somewhat less.

The Cochiti Indians, and also those of Santo Domingo, told me that this was the abode of the latter branch of the Queres tribe in times long prior to the Spanish era, and that the Santo Domingo Indians moved from here to the east side of the Rio Grande, where they were living in the sixteenth century, and live to-day. In regard to the pueblo on the Potrero de en el Medio I was unable to secure any tradition, but the Cochiti Indians "supposed" that it was formerly a Queres village.

The ancient character of the potsherds on the Potrero Quemado attracts attention. After diligent search I did not find more than two or three small pieces of the coarsely glazed kind, but the corrugated, and especially the white (or gray) decorated with black lines, were abundant, resembling the pottery found in connection with the small houses and some of the cave villages. If the Santo Domingo branch of the Queres inhabited the Potrero Quemado in former times, the question arises whether they emigrated from the Rito as a separate band, or moved off jointly with the Cochiti and San Felipe clusters, seceding from these at one or the other of the stations between the Potrero Quemado and the Rito de los Frijoles. There is such a marked difference between the pottery on the former and that at the other ruins of Queres villages north of it (the small houses excepted) that we might conjecture that the separation took place at the Rito before the people there had begun to manufacture the coarsely glazed variety. The greater or less decoration of pottery in the Southwest is owing to local conditions. But the introduction of a new material for decorative purposes is another thing.

It may have taken place at the Rito de los Frijoles; but ruins north of that place (for instance the Pu-yé) also exhibit it. It is a chronological as well as an ethnological indication, pointing to a discovery made at a certain time, possibly by one tribe and communicated by it to its neighbors, until it gradually became the property of several. It would be very interesting, therefore, to discover what this coarse glaze was made of. I have diligently inquired of the Indians, but without success, and it seems to be a lost art. If it was based upon the use of some special mineral ingredient, we might ultimately discover where that ingredient came from, and whether the invention was made at some particular place, or was evolved simultaneously among different tribes. But the glazed pottery shows rather decadence than improvement; it is coarser in texture, and although the patterns of the designs are nearly the same as those of older varieties, the glossy covering is thick and coarse.

At last we leave the mountains, and return to the Rio Grande valley, where, about five miles south of Peña Blanca, we meet with the ruins of another pueblo of the Santo Domingo Indians, called by them Gi-pu-y.

The ruins of Gi-pu-y stand a mile and a half east of the station of Wallace, and south of the railroad track on the brink of the Arroyo de Galisteo. That torrent has water only during heavy rains, when it frequently becomes dangerous. The people of Gi-pu-y experienced this when a part of their village was swept away in one night, and they were compelled to move to the Rio Grande and establish their home on its banks. The first time we hear of Gi-pu-y is in the journal of Oñate in 1598.[1] Previous to Oñate, in 1591, Gaspar Castaño de Sosa had named one of the Queres villages on the Rio Grande Santo Domingo, and his Journal leads me to infer that it stood on the east bank of that river.[1] About 1660 it certainly lay on the eastern side of the Rio Grande.[2] A change in location of a pueblo is not always accompanied by a change of name.[3]

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[1] *Obediencia y Vasallaje de Santo Domingo*, p. 107. *Discurso de las Jornadas*, p. 254. He calls the place Santo Domingo, without stating that he had named it so himself. This implies that the name was given by some previous explorer. The distance which he travelled from San Felipe to Santo Domingo, four leagues

It would seem, therefore, that the Gi-pu-y near Wallace is not the historical Gi-pu-y, but a village of the same name of the Santo Domingo Queres, abandoned by them in consequence of a disastrous flood previous to 1591. The ruins indeed appear very old, and the southeastern portion has been carried off by the torrent. They consist of low mounds of rubble and rubbish, with a good deal of glazed pottery. At one place there is a wall, apparently of adobe, three feet thick, and traces of foundations of the usual thickness (0.30 m.) are visible in several of the mounds. The site is level, and decay, not abrasion, has redued the ruins to their present condition. Some of the glazed pottery fragments, however, are still very bright in color. The banks of the arroyo are vertical in most places, and from ten to fifteen feet in height.

Historical Gi-pu-y, of which Juan de Oñate has written, and

(11 miles), is very exact, and shows that the latter pueblo stood on the banks of the Rio Grande on or very near the site it occupies to-day, and not at Wallace. Old Gi-pu-y is 1¼ leagues farther east than the Santo Domingo of to-day.

[1] *Memoria del Descubrimiento*, p. 253. It is plain from that Journal that the village stood on the Rio Grande, since he says that it stood "on the banks of a great river," to which he himself afterwards gives the name of "el Rio Grande." That it was on the east bank is also very clear, since he reached the place from San Marcos without crossing the Rio Grande.

[2] Vetancurt, *Crónica*, p. 315. His information about the pueblos of New Mexico dates mostly from 1660. That the village stood on the river bank in August, 1680, is plainly stated by Antonio de Otermin in his *Diario de la Retirada*, fol. 30.

[3] Thus San Felipe has always kept its name of Kat-isht-ya, although its location has thrice been changed. Sandia has remained Na-fi-ap, although it was abandoned in 1681 and reoccupied only in 1743. Isleta is Tahya-uip-a to-day, as it was in 1681. Other pueblos, however, have changed their names.

which, it appears, was the Santo Domingo of Castaño, stood nearly on the site of the present pueblo; but from what the Santo Domingo Indians told me, I infer that the first church, built between 1600 and 1605,[1] was erected on the banks of the Galisteo, north of the village.[2] It was swept away by that torrent, and the pueblo rebuilt farther west on the banks of the Rio Grande. The new village bore the name of Huash-pa Tzen-a. When the river carried off a part of that settlement also, its inhabitants again moved farther east, always clinging to the river banks. The pueblo was then called Ki-ua, which name it still bears. In 1886 a part of Ki-ua, including both churches, was destroyed by a flood, so that it is now impossible to recognize the ancient sites. The Gi-pu-y near Wallace is the only one of the old pueblos of Santo Domingo, east of the Rio Grande, of which any traces are left.

Santo Domingo is rich in historical reminiscences; but it would carry me too far to refer to them here in detail. The next ruin south of it, which I have not seen, is near the village of Cubero, on the west side of the Rio Grande. It is called by the Indians of San Felipe Kat-isht-ya, or Tyit-i Haa, as the site of the ruin itself, or that of Cubero near by, is meant. Tradition has it that the first village of the San Felipe branch of the Queres was built there. The substance of this folk-tale is as follows.

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[1] Fray Juan de Escalona, Commissary of the Franciscan Order in New Mexico, was the builder of the first church of Santo Domingo. He died in that pueblo, and was buried in the temple, in 1607. Vetancurt, *Menologio;* also, *Crónica*, p. 316. Torquemada, *Monarchia*, vol. iii. p. 598. Every trace of that church has long since disappeared.

[2] The Galisteo torrent reaches the Rio Grande a few hundred meters north of the present village of Santo Domingo. The pueblo is much exposed to damage by water, and for a number of years the river has been constantly encroaching on the east bank. Moreover, several torrents on the south, like the Arroyo de los Valdéses and others, do mischief, yet the Indians will not leave the spot.

When the "Pinini" surprised the pueblo of Kuapa, they slew nearly all its inhabitants. A woman concealed herself behind a metate, and a boy hid in a store-room. Along with the woman was a parrot. After the enemy had left, the parrot took charge of the boy and fed him till he was grown up, when he directed him and the woman to go south in search of new homes. So they wandered away, the boy carrying the parrot and a certain charm or fetich, which was contained in a bowl of clay. The Indians of the pueblo of Sandia, to whom they first applied for hospitality, received them coldly. The fugitives accordingly turned to the east, and went to the Tanos, probably of the village of Tunque. Here the woman gave birth to five children, four boys and one girl. The boys of the Tanos often taunted these youngsters with being foreigners, and, nettled by these taunts, they asked their mother about their origin. She told them the story of her past, and acknowledged that the Tanos country was not theirs. She told them that at the foot of the mesa of Ta-mi-ta, a height in the shape of a truncated cone, nearly opposite San Felipe, on the east bank of the Rio Grande, they would find their future home. Thereupon the boys set out, following the course of the Arroyo del Tunque to the mesa indicated, and succeeded in raising abundant crops in the Rio Grande valley. There had been a famine among the Tanos for two years, and therefore the boys carried their harvests home to their mother. In course of time the Queres refugees left the Tanos permanently, and built a village west of the Rio Grande at Cubero. This was the first pueblo called Kat-isht-ya. Subsequently that village was abandoned, and a new one constructed at the foot of the mesa of Ta-mi-ta, to which the same name was given.

There the first church of San Felipe was built by Fray

Cristobal de Quiñones, who died at the pueblo in 1607, and was buried in the temple which he had founded.[1] The Queres occupied this site until after 1683.[2] Ten years later,

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[1] The San Felipe of the Queres must not be confounded with a "Sant Felipe" mentioned in the *Testimonio dado en México* (Doc. de Indias, vol. xv. pp. 83 and 90) by the companions of Francisco Sanchez Chamuscado in 1582. The latter pueblo was the first one met by these explorers in 1581 on their way up the Rio Grande, and was a village of the Piros, probably near San Marcial, at least 160 miles farther south. The name Sant Felipe was afterwards forgotten. The pueblo at the foot of Ta-mi-ta was undoubtedly visited by Castaño in 1591, and it may be that he gave that name to it. Oñate so calls it in 1598, in *Discurso de las Jornadas*, p. 254. He arrived there on the 30th of June, "Pasamos á Sant Phelipe, casi tres leguas." Also in *Obediencia y Vasallaje de San Juan Baptista*, p. 114: "La Provincia de los Cheres con los pueblos de Castixes, llamados Sant Phelipe y de Comitre." We find here in a corrupted form the Indian names both of the pueblo and of the round mesa at the foot of which it stood. "Castixes" is a corruption of Kat-ist-ya, and "Comitre" stands for Ta-mi-ta. The error was probably made in copying the document for the press. San Felipe again appears in the document called *Peticion á Don Xptobal de Oñate por los Pobladores de San Gabriel*, 1604 (MS.): "Pedimos y supflicamos sea serbido de despachar y echar desta bella á Jua Lopez Olguin al pueblo de San Felipe." Fray Cristóbal de Quiñones had an organ set up at San Felipe. Says Vetancurt, *Menologio*, p. 137: "Solicitó para el culto divino organos y música, y por su diligencia aprendieron los naturales y salieron para el oficio diuino diestros cantores." According to the *Crónica* (p. 315), San Felipe previous to the rebellion had a "Capilla de Músicos." It is well established that many of the Pueblo Indians knew and performed church music in the seventeenth and eighteenth centuries. Fray Cristobal died at San Felipe, April 27, 1609, and was buried in the church. Vetancurt, *Menologio*, p. 137. He had also established a hospital with a pharmacy. San Felipe in 1636 was the residence of the Father Custodian, Fray Cristóbal de Quiros. *Autos sobre Quexas contra los Religiosos del Nuebo México*, 1636, MS. But it was not as a permanent seat; at that time the custodians resided at their respective missions.

[2] No massacres of Spaniards or priests occurred at San Felipe in August, 1680, but a few Indians who had remained faithful to the Spaniards were killed. *Interrogatorios de Varios Indios*, 1681, fol. 139. All the males of that pueblo, with few exceptions, joined in the butchery at Santo Domingo. At the time there was no resident priest at San Felipe, but the missionaries for the three Queres pueblos of Cochiti, Santo Domingo, and San Felipe resided at the convent of Santo Domingo. The Indians of San Felipe also took part in the frightful slaughter of Spanish colonists that occurred in the haciendas between the pueblo and Algodones. Compare Otermin, *Diario de la Retirada*, 1680, MS., fol. 31. The pueblo was abandoned upon the approach of the retiring Spaniards, and many Indians appeared upon the Great Mesa on the west side of the

Diego de Vargas found them on the opposite side of the river, on the Black Mesa, overlooking San Felipe.[1] A church was built on this site after 1694, the ruins of which present a picturesque appearance from the river banks. In the beginning of the last century, the tribe of San Felipe left the mesa, and established itself at its foot, where the present Kat-isht-ya, the fourth of that name, stands.

Not a trace is left of the old pueblo, near the round mesa of Ta-mi-ta. The village, the church, and its convent have completely disappeared. The floods of the Tunque, on the northern border of which it stood, have combined with those of the Rio Grande to obliterate every trace. Potsherds may occasionally be picked up in the fields near by, or on the sandy hillocks; but I have not been fortunate enough to find any. Only tradition and documentary information enable us to identify the place.

Rio Grande, watching the march of Otermin. It was reoccupied immediately afterwards by its inhabitants. *Interrogatorios*, fol. 137 *et seq.* In December, 1681, Mendoza found it deserted. *Ynterrogatorio de Preguntas*, MS.: "Y que de allí pasó al pueblo de San Felipe, y lo halló despoblado, y en el solo Yndio llamado Francisco al qual le pregunto en su lengua por la gente del pueblo, y respondió haberse ido huyendo á la Cieneguilla, ó pueblo de Cochiti, y haciendo buscar el pueblo en todas sus casas, se hallaron muchas cosas de la Yglesia, y enparticular vn incensario de plata, y vna naveta, y caxuela de los santos oleos, y cruces de mangas quebradas, y en todas las demas casas cantidad de mascaras de sus bayles diabólicos, y en medio de la plaza montones de piedras adonde hacían sus idolatrías, y toda la Yglesia destruida, y el convento demolido, y en la orilla del rio le digeron, los que ivan en su compañia, que estaba una campana, que quiziern quebrar, y solo le hicieron vn agugero." San Felipe was occupied again, and was inhabited in 1683. *Declaracion de vn Yndio Pecuri*, MS.

[1] In the fall of 1692, when Vargas made his first dash into New Mexico, the Indians of San Felipe were with those of Cochiti on the Potrero Viejo. *Autos de Guerra de la Primera Campaña*, 1692, fol. 141. I have already stated that the Indians of San Felipe kept their promise of returning to their pueblo, which stood then on the summit of the long Black Mesa west of the present pueblo. There Vargas found them in November, 1693. *Autos de Guerra del Año de* 1693, fol. 22: "Y ayer salí con 50 soldados por todos y 60 mulas con sus arieros y suví á la mesa donde tienen dho pueblo los de Sn Phelipe." It still stood there in 1696. *Autos de Guerra del Año de* 1696, MS.

The same cannot be said of the village built on the top of the mesa of Tyit-i Tzat-ya, that rises abruptly above the San Felipe of to-day. Figure 23 of Plate I. conveys an idea of the size and arrangement of the ruin. The east side approaches the brink of the mesa, which is difficult of access. The church is of adobe, and stands on the edge of the declivity in the northeastern corner. The cells of the Indian dwellings, two rows deep, form the north, west, and south sides, so that the pueblo forms three sides of a quadrangle, with an entrance in the southwestern corner. The church measures 20.0 by 6.3 meters (65 by 20 feet); the houses have a total length of 217 meters (712 feet). It was therefore a small pueblo, and the number of rooms (fifty-eight) shows that the population cannot have been considerable. The walls are fairly well built of blocks of lava and 0.45 m. (18 inches) thick, and most of the houses may have been two stories high. When Diego de Vargas visited it in 1693, he found it in good condition.[1] How long the Queres remained on the mesa after that date, I have not ascertained.

There is a tale current among the Indians of San Felipe of the flight of Fray Alonzo Ximenez de Cisneros, missionary at Cochiti, from that village, in the night of the 4th of June, 1696, and his rescue by the San Felipe Indians. The facts are true in regard to the flight of the priest and the kind treatment extended to him by the people of Kat-isht-ya on the mesa; but the same cannot be said of the siege, which the pueblo is reported to have withstood afterwards. The Cochiti Indians followed the Franciscan, whom they intended to murder, for a short distance, but withdrew as soon as they saw that he was beyond their reach. Then they abandoned their pueblo, and retired to the mountains, — not to the Potrero Viejo, but to the more distant gorges and crests of the Valles range. The San Felipe pueblo was never directly threatened in 1696, and consequently the story of the blockade, and of the suffering from lack of water resulting from it, and the miraculous intervention of the rescued missionary, is without foundation.[1]

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[1] *Autos de Guerra de* 1693, fol. 22: "Y los Yndios todos me salieron á rezeuir sin armas y las mujeres á otro lado muy vien bestidas y todos con sus cruzes en la garganta y tenían vna grande á la entrada del pueblo y asimesmo en las casas y la plaza muy barrida, puestos muchos bancos y petates nueuos para que me sentase y nos dieron á todos de comer con grande abundancia y hizieron demostracion de mucha alegria." I am unable to say when the church now in ruins on the edge of the mesa was built, but it was probably soon after 1694. There was a resident priest at San Felipe from 1694 until 1696, when Fray Alonzo Ximenez de Cisneros fled from Cochiti on the 4th of June, 1696, and remained there until the following year. He was succeeded by Fray Diego de Chavarria, and from that time on the list is uninterrupted down to the first half of this century. See the *Libro de Entierros de la Mision de San Felipe*, 1696 to 1708, MS.

San Felipe at present is the last of the Queres villages on the Rio Grande towards the south, and beyond the defile formed by the Black Mesa on one side and the high gravelly bluffs above Algodones on the other,[2] can be seen the beginning of the range of the Tiguas. If the traditions concerning the origin of the San Felipe villages are true, the Tiguas were already established on their range before the dispersion of the Queres at Kua-pa took place, since the fugitives from there applied in vain to the Indians of Sandia for hospitality. A historical fact of some importance would accordingly be established by that fragment of Indian folk-lore.[3]

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[1] Father Cisneros was one of the priests who entered upon his mission among the Pueblos in 1695, but soon discovered that they were bent upon another outbreak. He gave warning of it by letter to the Custodian in the beginning of 1696, *Carta al Padre Custodio Fray Francisco de Vargas*, MS., and joined in the petition of the latter to Diego de Vargas, *Peticion del Custo y Definitorio al Gobernador Don Diego de Vargas*, MS. Vargas disregarded these well grounded cries of alarm, and Father Cisneros fled to San Felipe and was well received there. The Indians of Cochiti left their village at once, and returned thither only in the late fall of 1696. *Autos de Guerra del Año de* 1696, "Primer Cuaderno." Escalante, *Relacion*, pp. 172 and 174.

[2] This is called "La Angostura," or "The Narrows."

[3] Sandia, or Na-fi-ap, is an old Tigua village. From this tradition we may

There exists, to my knowledge, but one Queres ruin south of San Fellipe. This does not stand on the river bank, but west of it; in the wild labyrinth of lava, basalt, and trap about the "Cangelon," north of Bernalillo. That ruin, which I have not seen, is claimed by the Queres of Santa Ana as the first pueblo inhabited by their ancestors in this section.[1] The present village of Santa Ana lies southwest of that of San Felipe, on the eastern bank of the Jemez River. We must therefore leave the Rio Grande for the present, and turn to that western tributary where a branch of the Queres, very characteristically designated by Antonio de Espejo as "Pun-a-mes," or "People in the West,"[2] already dwelt in the sixteenth century.[3] This branch is divided into two groups, — the people of Santa Ana or Tam-a-ya, and the tribe of Tzi-a or Cia.[4] How long before the sixteenth century they may have settled on the banks of the Jemez, I am unable to state, neither am I informed as to whether they claim to have

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also infer that the Tanos occupied their country at the same time, and previous to the events at Kua-pa.

[1] I am in doubt whether this ruin stands north or south of the mouth of Jemez River. The "Cangelon," literally prong or horn, is a very prominent rocky pillar rising above a volcanic mesa four miles north of Bernalillo.

[2] *Relacion del Viage* (Doc. de Indias, vol. xv. p. 11), and *Expediente y Relacion*, p. 178. The proper Queres word is "Pun-ama," but the corrupt version in Hakluyt has "Cuame." *El Viaie que hizo*, p. 9. This leads to an important misconception, as "Ku-a-ma" means "the people in the *South*." How the mistake was made, while still preserving a word of the Queres idiom, is a mystery, as Cuame is plainly as good a Queres word as Puname, but with an entirely different signification.

[3] Cia is mentioned by Castañeda (*Cibola*, p. 110), who calls it "Chia," and says of it, "C'est un gros village, situé à quatre lieues à l'ouest du fleuve." Counting from Bernalillo, Cia lies about fifteen miles to the northwest. Jaramillo, *Relacion du Voyage à la Nouvelle Terre*, p. 371, also speaks of Chia.

[4] There is considerable variation in dialect between the Queres spoken at Cia and that at Santa Ana. Between the latter dialect and that of Cochiti there is such a great difference that the people of the two villages understand each other with difficulty. There is more analogy between the dialects of Santa Ana and Acoma.

sprung from the cave dwellers at the Rito de Los Frijoles, like the Rio Grande Queres. The latter insist that all the Indians speaking their language are descendants of the tribe at the Rito; still, so long as the traditions of more distant branches do not confirm them, such assertions remain of doubtful value.

The Black Mesa of San Felipe is both long and broad, forming a triangular plateau which in extent and elevation resembles that on which the cone of the Tetilla rises between Santa Fé and Peña Blanca. Its width between San Felipe and Santa Ana is about nine miles, and about midway there is a considerable elevation, on whose summit stand the ruins of the second pueblo of Tan-a-ya or Santa Ana. This is first mentioned by Oñate in 1598 under its aboriginal name.[1] In the rebellion of 1680 it was without a priest, although it had a church and convent. The men of Santa Ana joined those of San Felipe in the massacres at Santo Domingo and in the Rio Grande valley; and the Lieutenant General of New Mexico, Alonzo Garcia, passed through it when he returned from Jemez and Cia with the priests whose lives he had saved.[2] Santa Ana was not molested by Otermin in 1681, as it lay too far away from the Rio Grande; but in the summer of 1687 Pedro Reneros de Posada, then Governor at El Paso del Norte, made a dash into New Mexico and appeared before it. Its inhabitants refused to listen to the summons to surrender, which compelled the Spanish commander to order an assault. After a desperate resistance, the village was carried, the woodwork of the houses set on fire, and several Indians perished in the flames.[1]

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[1] The *Obediencia de Santo Domingo* (p. 102) speaks of it under the name of "Tamy," as a pueblo of the Queres; again, in the *Obediencia de San Juan* (p. 115) it is called "Tamaya," and a village of the Cia group.

[2] The outbreak began at Jemez, and the Alcalde Mayor there, Luis Granillo, sent word to the Lieutenant General Garcia, who lived on a hacienda opposite the present site of Albuquerque, to come to his assistance. Garcia had only a few men; but with these he rescued Granillo, and the surviving priest of Jemez, as well as the missionary of Cia. He returned by way of Santa Ana, where he found only women and children. Upon his inquiring for the men, the women replied that they had gone out to kill all the Spaniards. *Diario de la Retirada*, 1680, fol. 51. Deposition of Luis Granillo: "Y allegamos al pueblo de Santa Ana, Indios de la misma nacion de los de Zia, y no hallandolos á estos, sino algunas Indias, y preguntandoles adonde estaban los varones, respondieron con mucho desdoro, y atrevimiento que habían ido á matar á todos los Españoles."

The affair of 1687 had a salutary effect upon the Indians of Santa Ana. When Vargas appeared, they were on a mesa some distance to the north.[2] But they promised to return to their pueblo, and did so. Vargas found them peaceably established in their homes in the following year, 1693, though fearful of the Jemez, who threatened them with vengeance for their adherence to the Spanish cause. Whether the pueblo then stood where it now stands, or whether the people of Santa Ana had rebuilt the one on top of the mesa, I am not informed.[1]

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[1] Siguenza y Gongora, *Mercurio volante con la Noticia de la Recuperacion de las Provincias del Nuevo México*, (Mexico, 1693,) p. 4: "Sucedióle Pedro Reneros, quien asoló el pueblecillo de Santa Ana, y desde él de Cía consiguió el volverse." The year is established by the original document signed by Posada, entitled *Sentencia dada contra diez Indios prisioneros del Pueblo de Santa Ana*, October 6, 1687 (MS.): "Dijo que por quanto abiendo hecho entrada á las probincias de la Nueba México y dado asalto en el pueblo de Santa Ana do la nacion Queres adonde sus moradores apostatas, luego que los sintieron, se pusieron en arma y pelearon con pertinancia y reseldia, y aunque se los hizo muchos requerimientos que rrindiesen la obediencia á su Magd no lo quisieron . . . asta tanto que mandé poner fuego al dho pueblo y aun biendose abrasar algunos de ellos mas tinos, se entregaron á las llamas que rrendirla obedienzia á su Magestad." Also Juan de Dios Lucero (*Peticion para Dispensa de Matrimonio*, 1688, MS.) speaks of the capture of Santa Ana as having occurred the previous year. I have no means of determining the population of Santa Ana in 1680. Vetancurt (*Crónica*, fol. 315) says it was "un pueblo peqeño," and that its inhabitants, together with those of San Felipe, amounted to over six hundred souls. Escalante (*Cárta al Padre Morfi*, par. 9) also states that Posada went as far as Cia: "Llegó al pueblo de Cia, quitó algunos caballos y ganado menor, y se volvió al paso sin conseguir otra cosa."

[2] Escalante, *Relacion*, p. 131: "Hallábanse los Cias y de Santa Ana, en un pueblo que habían hecho de nuevo en el cerro Colorado, distante cuatro leguas de Cia." In *Autos de Guerra*, 1692, October 23, fol. 143, he describes the pueblo on the "Cerro Colorado." This may mean the pueblo opposite Jemez, which the Cias speak of as having been the first.

There were consequently three pueblos of the Santa Ana tribe; one near the Cangelon, which is pre-historic; one on the mesa, erected previous to 1598, and destroyed by Posada in 1687; and the modern one on the banks of the Jemez River. All three are called by the same name, Ta-may-a, but I have not examined either of the two ruined villages.

The course of the Jemez River, from its source five miles north of Jemez to its mouth, is through sandy expanses, although fertile when irrigated. Opposite Santa Ana the sand forms broad white hills, destitute of vegetation. The pueblo almost leans against the craggy wall of the extensive mesa of San Felipe. Higher up, the borders of the plateau recede to the east, and the country opens. On a dune above the river, eight miles northwest of Santa Ana, stands the present Queres village of Cia, or Tzia.

It is said to occupy the same site as in the days of Coronado, and its church is also said to be the one which the Indians ravaged in 1680. I have my doubts about the correctness of both these assumptions.[2] There are ruins in the vicinity, which I had not time to investigate, of former pueblos of the Cia tribe. Opposite the present town stand the remains of Ka-kan A-tza Tia, and north of the present Cia lies Ko-ha-say-a. I was told that in ancient times war broke out between the two villages, because the people of the former stole the girls of the latter. The people of Ka-kan A-tza Tia were driven to the south by an attempt of those of Ko-ha-say-a to burn their pueblo with turpentine, and the latter moved to the site of Cia. There are also traditions about wars between the Cias and the Jemez, and between the Cias and their kindred of Cochiti, at a time when the latter lived on the Potrero Viejo. But I suppose these traditions allude to the hostilities that took place during the years 1694 and 1696, when the Cias espoused the cause of the Spaniards.

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[1] *Autos de Guerra*, 1693.

[2] *Autos de Guerra*, 1692 (fol. 143). Vargas found the pueblo completely destroyed by Cruzate. The site may be the same, but the church is probably a more recent edifice, though possibly erected on the old foundations.

Castañeda, who mentions Cia, speaks of but one large village belonging to that tribe.[1] Espejo, who calls the Cias "Punames," mentions a cluster of five, the largest of which was called "Sia."[2] Oñate, sixteen years later, names four.[3] In 1680, only one village was standing. The timely intervention of Alonzo Garcia saved the life of the missionary of Cia, Fray Nicolas Hurtado.[4]

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[1] *Cibola*, p. 182.

[2] *Relacion del Viage*, p. 115.

[3] He visited Cia on his way to Jemez, and spent the night of the first of August, 1598, in the former pueblo. *Discurso de las Jornadas*, p. 260: "Durmió aquel dia en el gran pueblo de Tria [Cia] ya dicho." In the *Obediencia de Santo Domingo* (p. 102) Cia is connected with the pueblos of "Comitre y Ayquiyn," and in the *Obediencia de San Juan Baptista* (p. 115), with the villages of "Tamaya, Yaccu, Tojagua y Pelchiu." Comitre is Tamita, and Tamaya is Santa Ana, while Yacco stands for "Y Acco," the Queres name for Acoma. This leaves three pueblos besides Cia.

[4] *Diario de la Retirada*, fol. 42. Garcia on his way to Jemez met the Alcalde Mayor Granillo fleeing with the surviving priest of Jemez. He entered Cia, "Adonde hallaron al R. P. Definidor Fr. Nicolas Hurtado, ministro guardian de dicho pueblo de Cia, y considerando la muchedumbre de los enemigos Christianos, y el no tener las fuerzas que el caso pedía para la resistencia de dichos enemigos, me fué forzoso hacerle requerimiento al dicho pe Fr. Nicolas Hurtado para que luego saliese de dicho pueblo, como con efecto hicimos, y haciendo miſa los dichos Cristianos repicaron las campanas dando grandes alaridos." On folio 51, the Alcalde Luis Granillo testifies: "Y de allí allegamos al pueblo de Zia, donde hallamos al Pe Difinidor Fr. Nicolas Hurtado, ministro de aquel pueblo, que con tres Españoles estaba fortalecido en lo mejor del convento, y con las bestias encerrado dentro, y con nuestra ayuda fué Dios servido que escapasen con la vida, y se vinieron en nuestra compañia, y á causa tambien que los Indios de dicho pueblo habían salido, á asolar las casas de los Españoles, y cerca de dicho pueblo, asi que nos sintieron, que venian ya á egecutar en dichos religiosos, y Españoles su traicion, comenzaron á dar grandes alaridos, á cuyas voces y alaridos repicaron las campanas en el pueblo, y con gran peligro, y mu-

When Domingo Gironza Petriz de Cruzate marched into New Mexico in 1689, the Queres made a determined stand at Cia. The action fought there on the 29th of August was the most bloody engagement in the wars for the reconquest of New Mexico. Cia was stormed, completely wrecked, and the tribe decimated.[1] I have already stated that they proved faithful to the Spaniards afterwards.

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chisimo trabajo salimos." It seems, therefore, that a few Spaniards were settled in the vicinity of Cia in 1680.

[1] I have not been able to find the official reports of this important expedition, which more than anything else contributed to dishearten the rebellious Pueblos. The earliest mention of it which I find is in the so called "Pueblo grants" of 1689. I copy from the *Merced de Pecos*, September 25, 1689: "Que por quanto en el alcance que se dió en los de la Nueva México de los Yndios Queres y los apostatas y los Teguas y de la nacion Thanos y despues de haber peleado con todos los demas Yndios de todos pueblos vn Yndio del pueblo de Zia llamado Bartolomé de Ojeda que fué el que mas se señaló en la vatalla acudiendo á todas partes, se rindio viendose herido de vn balazo. . . . Y dice el confesante que no que ya estan muy metido en terror, que aunque estaban ahilantados con lo que les había susedido á los de el puo de Zia el año pasado." The last sentence applies to the ill success of Posada, and it seems that the action of Cia was fought in 1689; the day and month are taken from Siguenza y Gongora (*Mercurio Volante*, p. 4), who gives the following report on the engagement: "Asegundó D. Domingo Gironza en governar aquel reino, y en los pocos años que fué á su cargo rindió á fuerza de armas á los de aquel pueblo (digo él de Zia) muriendo en la batalla, como seiscientos rebeldes, sin muchos otros, que se quemaron en sus propias casas, por no entregarse. Fué esto á veinte y nueve de Agosto de mil seiscientos y ochenta y nueve." The date is therefore the 29th of August, 1689. Escalante places the occurrence in September of that year. *Carta al Padre Morfi*, par. 9: "Por Setiembre del año siguiente entró D. Domingo Gironza á la misma reduccion de los rebeldes. Tuvo una sangrienta batalla en el dicho pueblo de Cia, en que los rebeldes se defendiéron con tal valor y desesperado arrojo, que muchos se dejaron quemar vivos sobre las casas por no rendirse; el número de Queres, asi del dicho pueblo como del de Santa Ana, y de otros que vinieron de socorro á los sitiados, que quedaron muertos en esta batalla, llegó á 600 de ambos sexos y de diferentes edades. Solo cuatro ancianos se cogieron vivos; en la misma plaza del pueblo fuéron arcabuzeados. No consta que en esta espedicion se hiciese otra cosa." That Cia was completely wrecked is proved by Vargas, *Autos de Guerra*, 1692, fol. 143. Escalante, *Relacion*, p. 132: "Pasó al pueblo de Cia que estaba sin gente y asolado por D. Domingo de Gironza. En él se halló una campana enterrada, que quedó del mismo modo hasta la otra venida."

North of the district claimed by the Cias begins the range, both ancient and modern, of a distinct linguistic stock, the Indians speaking the Jemez language. The Queres held and hold to-day about one half of the course of the Rio de Jemez.[1] The other half is a sandy valley, in which stands the Jemez pueblo. The antiquities of this tribe lie mostly in the mountains beyond, in and around the romantic gorges on the eastern slopes of the Sierra del Valle. West of Cia begins the dreary region that extends to the Rio Puerco. Still farther west, the Navajo reservation occupies the entire northwest of New Mexico. The Jemez River therefore constitutes a boundary between a district where history or tradition is associated with pre-historic remains, and one in regard to whose antiquities we have no such means of information.[2] To the latter region I shall refer in a subsequent chapter, devoting the one next following to a short review of whatever of antiquarian interest the Jemez district offers.

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[1] To speak figuratively, since the issue of the so called grants to the Pueblos, each one has only its few square leagues; formerly they rather roamed over than actually held certain ranges.

[2] There are ruins on the west side of the Jemez, like Ka-kan-a-tza Tia, of which the origin is known. In the Navajo reservation I know of not a single ruin concerning which there exists a tradition or tale assigning its origin to a definite tribe. I hope, however, that the work done by Dr. Mathews among the Navajos will bring to light something more positive about the past of these ruins.

V.

THE COUNTRY OF THE JEMEZ.

THE Valles Mountains separate the northern section of the Queres district from that claimed by the Jemez tribe. Against the chain of gently sloping summits which forms the main range from the peak of Abiquiu to the Sierra de la Palisada in the south abuts in the west an elevated plateau, containing a series of grassy basins to which the name of "Los Valles" (the valleys) has been applied. Permanent streams water it, and contribute to make an excellent grazing region of this plateau. But the seasons are short, for snow fills the passes sometimes till June, and may be expected again as early as September. During the three months of summer that the Valles enjoy, however, their appearance is very lovely. Heavy dews fall daily, and rains are common. The high summits are seldom completely shrouded for more than a few hours at a time, and as soon as the sun breaks through the mist, the grassy basins shine like sheets of malachite. Flocks of sheep dot their surface, and on the heights around the deep blue tops of the regal pines mingle with the white trunks and light verdure of the tall mountain aspens. It is also the country of the bear and the panther, and the brooks teem with mountain trout.

But for agriculture the Valles offer little inducement; for although the soil is fertile, ingress and egress are so difficult that even potatoes, which grow there with remarkable facility, cannot be cultivated profitably. The descent to the east towards Santa Clara is through a long and rugged gorge, over a trail which beasts of burden must tread with caution, while towards Cochiti the paths are still more difficult. On the west a huge mountain mass, the Sierra de la Jara, interposes itself between the principal valley, that of Toledo, and the Jemez country. Both north and south of this mountain the heights are much less considerable; still the clefts by which they are traversed are none the less narrow, and the traveller is compelled to make long détours in order to reach the Jemez River.

The country inhabited by the Jemez tribe lies west of the Valles, and its upper portions might be described as similar to the region about the Rito de los Frijoles and south of it, were it not that its principal cañons run from north to south, or parallel to the mountain chains, instead of transversely, as in the Queres district. The deep clefts through which the Rio de San Diego, and west of it the Rio de Nuestra Señora de Guadalupe, converge to form the Jemez, are gorges exceeding in depth any of those on the eastern flank of the Valles chain; there is barely room for the trail beside the roaring torrent. Dense forests and shrubbery fill the bottom and line the streams. On both sides the variously colored walls rise to appalling heights; sometimes in crags, pinnacles, and towers, but mostly in huge steps, the highest of which terminate with the long sharp edge characteristic of the flat-topped mesa formation.

While the mountainous parts of the Queres range are dry, the Valles constitute a water supply for the Jemez country. Two streams rise in it, the San Antonio on the eastern flank of the Jara mountain, and the Jara at the foot of the divide, over which crosses the trail from Santa Clara. These unite soon to form the San Antonio "river," which meanders through the Valles de Santa Rosa and San

Antonio for seven miles in a northwesterly direction, and enters a picturesque gorge bearing the same name, and then gradually curves around through groves until, at La Cueva, it assumes an almost due southerly direction. One or two more brooks increase its volume on the way, descending directly from the mesa pedestal of the Jara Mountain, and its name is changed from San Antonio to the Rio de San Diego.[1]

I have not seen the head-waters of the Guadalupe Creek, which rises in what is called the Nacimiento district, farther west. Its volume, however, is inferior to that of the San Diego, which may be considered as the main artery of the Jemez country.

The water is clear, limpid, and cool. This is the more remarkable, since all along the eastern rim of the Valles, in the gorges traversing it, on the banks of the San Diego, and even in the very bed of that river, thermal springs rise in great numbers. The Jemez district is filled with medicinal sources, hot as well as cold. In the gorge of San Antonio rises a spring, the temperature of which is 110° F.[2] About five miles south of it are mud-baths, on the heights that separate the Valles from the San Diego gorge. In that gorge, ice-cold soda springs issue near the river bed, and a short distance above the bathing establishment a huge cylindrical dam traverses the stream, in which steaming currents and cold streams flow parallel to each other, neither affecting the temperature of the others, although only a few inches of rock separate them. At the baths cold sulphur waters lie close to the hot springs. The value of the Jemez springs is abundantly proved in cases of rheumatism and eczema. The principal springs contain lithia, but are not arsenical, like those at the Ojo Caliente of Joseph. Their temperature rises as high as 168°. Chloride of sodium is the prevalent mineral ingredient.[1]

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[1] The average elevation of the Valles is 8,000 feet, but they rise as high as 8,500. The springs of San Antonio lie at an altitude of 8,586 feet; the Jara Mountain, called also Cerro Pelado, is 11,260 feet high, and the hot springs of San Diego are a little over 6,000. These figures are taken from the topographical map of the United States Geographical Survey. The fall from San Antonio amounts to at least 2,000 feet in seventeen miles.

[2] The volume of water is very considerable, issuing from the slope on the south side of the gorge at an elevation of perhaps 200 feet. It is considered as of great value for rheumatic complaints, and although no accommodations are to be had th[illegible] is frequently visited by the people of the country.

Four miles above the hot springs of Archuleta the character of the San Diego Cañon changes. It widens and the forests disappear. Huge deposits of native sulphur are seen above the river banks. The soil is covered with yucca, cacti, and other plants characteristic of the flora of New Mexico. The change is striking, from the picturesque wooded wilderness through which the stream leaps and rushes, to a bleak channel between walls of enormous height, where it flows quietly, while above tower the gigantic mesas with bare walls of light yellow, ashy gray, and red. It continues to maintain this character for twelve miles farther, narrowing towards the end. Five miles north of the present pueblo of Jemez, or Ual-to-hua, the mesas terminate in a sharp point over five hundred feet in height. Below this point the Guadalupe unites its waters with those of the San Diego, forming the Jemez River. The country opens to the south, becoming sandy and barren-looking, resembling the Rio Grande valley in bleakness. The gigantic mesas recede to the eastward, where they loom up like solemn monuments behind the arid hills that separate Jemez from Peña Blanca on the Rio Grande.

Thus the Jemez country is divided into two sections, — the northern a series of plateaux intersected by deep clefts, and the southern constituting the low lands. This geographical division is in part also historical, since the Jemez tribe, when first discovered by the Spaniards, clustered around the hot springs, although at present they dwell in the sandy valley of the Jemez River above Cia.

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[1] In 100 parts of water, chloride of sodium, 0.1622; sulphate of soda, 0.0035; carbonate of lime, 0.0641; carbonate of magnesia, 0.0103; potassa, lithia, silicic acid, sulphate of lime, traces. Analysis by Oscar Loew.

I have made but two short visits to the Jemez country, and had neither time nor opportunity for examining its ruins, except superficially. The first vestiges which I noticed, when coming from the Valles, were at La Cueva, five miles below San Antonio. I was informed by various persons that pottery had been found at that place; also the remains of small houses of stone. Lower down, the cañon becomes too narrow and rugged for habitation; there is no space for cultivation as far as the cold soda springs. On the mesas right and left there are said to be traces of ruins; but the extensive ones only begin about the springs. In the bottom, about half a mile to the north of the baths, on a gentle slope descending to the river's edge from the east, lie the ruins of the old pueblo of Gin-se-ua, with the stately old church of San Diego de Jemez.

The pueblo was built of broken stone, and formed several hollow quadrangles at least two stories high. It contained about eight hundred inhabitants. The church is a solid edifice, the walls of which are erect to the height of ten or fifteen feet, and in places nearly eight feet thick. It is not as large as the one at Pecos, and behind it, connected with the choir by a passage, rises an octagonal tower, manifestly erected for safety and defence. Nothing is left of the so called "convent" but foundations. The eastern houses of the pueblo nearly touch the western walls of the church, and from this structure the village and a portion of the valley could be overlooked, and the sides of the mesas easily scanned.

Ginseua is an historical pueblo. It first appears under the name of Guimzique in 1626.[1] It seems that it was abandoned in 1622, on account of the persistent hostility of the Navajos, who had succeeded in scattering the Jemez tribe. In 1627 Fray Martin de Arvide obtained permission from his superior, the Custodian Fray Alonzo de Benavides, to attempt to gather the tribe again in its old home. The efforts of the monk were successful, and the Jemez Indians settled in two of their former pueblos, — at Ginseua and at Amoxiumqua. Chapels had probably been built at both these places previous to 1617, and the Jemez tribe reoccupied both sites in place of the numerous pueblos of small extent which it had inhabited previous to 1627.[2] Amoxiumqua lies on the mesa that rises west of the springs. South of it is another ruin, and still another called Ash-tyal-a-qua.[1] The ascent to the mesas is very steep and long.

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[1] Fray Gerónimo de Zárate-Salmeron, *Relaciones de todas las cosas que en el Nuevo México se han visto y sabido*, MS., par. 11: "Hice esta diligencia con los capitanes de la nacion Henex, y llamando al capitan mayor del pueblo de Amoxunqua, llamado Dn Francisco Guaxiunzi y al capitan mayor del pueblo de Quiunzique, llamado Dn Alonzo Pistazondi y Dn Gabriel Zanou su hermano y otros viejos." Fray Zárate lived as missionary among the Jemez in 1618. Introductory letter: "Habrá 8 años que no sacrifique al Señor entre los Ynfieles del Nuevo Mexico. Y habiendo deprendido lengua de la nacion de los Yndios Hemeos adonde compuse la Doctrina Cristiana." It seems that Ginseua and Amoxiumqua were then the principal pueblos of the Jemez tribe.

[2] Benavides, who came as Custodian to New Mexico in 1822, says in his *Memorial*, p. 29: "Passando este rio á la parte del Occidente á siete leguas se topa con la nacion Hemes, la qual quando entré por Custodio, se auía desparramado por todo el Reino, y estaua ya casi despoblada, por hambre y guerra, que la ivan acabando, adonde los mas estauan ya bautizados, y con sus Iglesias, con harto trabajo, y cuidado de algunos religiosos, y assi procuré luego reduzirla, y congregarla en la misma Provincia, y puse religioso, que con cuidado acudió á ello, y lo auemos congregados en dos pueblos, que es en el de San Joseph, que todavía estaua en pié, con una muy suntuosa y curiosa iglesia, y conuento, y en el de San Diego, de la Congregacion, que para este efeto fundamos de nueuo, trayendo allí los Indios que auía de aquella nacion, que andauan descarriados." The words "de la Congregacion" seem to indicate that the first mission at San Diego de Jemez was due to the Capuchins! It results also from this that the old church at San Diego was built *after* 1622, and probably after 1626. Comparing the above statement of Benavides with that of Fray Zárate, it seems probable that Amoxiumqua was San Joseph de los Jemez, and was never completely abandoned until later on. Vetancurt (*Menologio*, p. 76), speaking of Fray

At the present stage of our historical knowledge it is impossible to establish with any degree of certainty the number and location of the Jemez pueblos that were inhabited in the early days of Spanish colonization. At the time of Coronado it is stated that there were seven villages of Jemez and three at the hot springs.[2] Oñate, who visited Jemez and its thermal sources on the 3d, 4th, and 5th of August, 1598, says there were eleven villages in all, of which he saw eight.[3] In two of

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Martin de Arvide says: "Viviendo en el convento de San Lorenzo de los Pecuries oyó decir que en los Hemes se habían ido los Indios á los montes y andaban vagos por aquellas sierras, y llevado del fervor de su espiritu, con licencia del reverendo Padre Fran Alonso de Benavides, Custodio, y facultad del Gobernador Don Felipe Zotilo, subió entre los fugitivos y con la benignidad de Padre los exhortó y los congregó á sus pueblos." San Diego de los Emex is mentioned also in 1643, in the *Carta de Justicia, Autos y Comisson, cometida al Sargentto Mayor Franco Gomez* (MS.).

[1] I am still in doubt about the true location of Ashtyalaqua, but I believe it was situated on the mesa. As to San Joseph de los Jemez I incline to the belief, as above stated, that it was Amoxiumqua. For the statement ascribing the first establishment of churches among the Jemez to the years preceding 1617 I refer to Zárate, *Relaciones*, Introductory letter to Benavides, *Memorial* (p. 29), and to the *Cédula Real* of May 20, 1620 (MS.), in which the King says: "El cabildo de Santa Fé del Nuevo México en carta qe me escribió en 3 de Octubre del año pasado de 617, refiere lo que sus vecinos han trabajado para el asiento de aquella nueva poblasion, y lo que han gastado en ella, y que han venido en conocimiento de nuestra Santa Fé, mas de catorce mil almas siendo otras tantas las qe estan para recibir el Santo Baptismo, y que hay once yglesias fundadas con pocos ministros." It is difficult to locate these eleven churches without including two among the Jemez.

[2] Castañeda, *Cibola*, p. 137. Francisco de Barrionuevo is the name of the Spanish officer who first visited the Jemez in the fall of 1541. "Cet officier visita deux provinces; l'une se nommait Hemes, et renfermait sept villages." Further on (p. 182), he assigns seven villages to Jemez and three to Aguas Calientes.

[3] I do not mention Espejo, who also visited the "Emeaes" in 1582, (*Relacion del Viage*, p. 116,) since he made but a short stay there. The dates for Oñate are taken from *Discurso de las Jornadas*, p. 261: "A quatro, bajamos á otros pueblos de los Emmes, que por todos son honce, vimos los ocho, . . . á cinco, ba-

the "Acts of Obedience and Vassalage" of the same year, nine and eight pueblos respectively are mentioned. Nearly all the names are unrecognizable.[1] In my conversations with the Jemez Indians I noted the names of seventeen of their old pueblos, but was unable to ascertain their location, except that they lie in the mountains north, northeast, and northwest of their present village.[2]

The few fragments of Jemez traditions I was able to gather are confused, and somewhat conflicting. They speak of a lagune lying in the north, to which the soul travels after death in four days, which they call Ua-buna-tota. There, they claim, the Jemez had their origin. But they also say that the people of Amoxiumqua dwelt first at the lagune of San José, seventy-five miles to the northwest of Jemez, and that they removed thence to the pueblo of Añu-quil-i-jui, between the Salado and Jemez. In both of these places there are said to be ruins of former villages. All these bits of tradition indicate a migration from the north. There are also tales about a remarkable man whom the Jemez call Pest-ya So-de, who

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jamos al húltimo pueblo de la dicha provincia, y vimos los maravillosos baños calientes que manan en muchas partes y tienen singulares maravillas de naturaleza, en aguas frias y muy calientes; y muchas minas de azufre y de piedra alumbre, que cierto es, mucho de ver." This is the first description, to my knowledge, that was ever given of the San Diego hot springs, and of the mineral springs and other wonders of the Cañon.

[1] *Obediencia, etc. de Santo Domingo*, p. 102: "Yxcaguayo, Quiamera, Fia, Quiusta, Leeca, Poze, Fiapuzi, Trivti, Caatri." *Obediencia de San Juan Baptista*, p. 114: "Yjar, Guayoguia, Mecastria, Quiusta, Ceca, Potre, Trea, Guatitruti, Catroo." The misspelling is manifest, and has certainly contributed more than anything else to render the names unrecognizable.

[2] The following are the names of these seventeen pueblos, as given to me by an Indian at the pueblo of Jemez: Ginseua (San Diego), Amoxiumqua on the mesa between the two streams of San Diego and Guadalupe, Asht-yalaqua or Patoqua (stated to me as having been San Joseph, which I doubt), Quia-tzo-qua, Ham-a-qua, Tya-juin-den-a, To-ua-qua, Quia-shi-dshi, Pe-cuil-a-gui, Se-to-qua, Añu-quil-i-gui, Osht-yal-a, No-cum-tzil-e-ta, Pem-bul-e-qua, Bul-itz-e-qua, Uä-hä-tza-e, Zo-lat-e-se-djii, and Se-shiu-qua. Añu-quil-i-gui lies north of Jemez; of the others I can only fix the site of the first three.

derived his "medicine" from the sacred lagune of Ua-buna To-ta, and who introduced the various "customs," as the rites of the secret societies are called in the tribe. He was a famous hunter, and may be the equivalent of Pose-ueve and Pusha-iankia.[1]

To return to solid historical ground, it is certain that the numerous small villages of the Jemez were, soon after the establishment of Spanish rule, gradually consolidated into two, and finally into one, larger pueblo.[2] Amoxiumqua was abandoned previous to 1680; but I incline to the belief that a village of which the ruins are visible on the delta formed by the junction of the San Diego and Guadalupe, was San Juan de los Jemez, and inhabited at that time.[3] The Jemez tribe was always much exposed to incursions of the Navajos, but, as is often the case with Indians, they sometimes sided with their enemies against the Spaniards, to whom they really owed their safety. In the middle of the seventeenth century a conspiracy on the part of the Jemez was detected, in which they had joined the Navajos. It was repressed with just severity, the Governor, Don Fernando de Arguello, causing twenty-nine Indians to be hung, as they had already killed one Spaniard by the name of Diego Martinez Naramjo, and an outbreak on a larger scale was imminent.[1] A few years

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[1] And of the Push-a-ya of the Queres. I intend to return to this important mythical personage at the close of this Report.

[2] Vetancurt (*Crónica*, p. 319) says: "De cinco pueblos se hizo uno."

[3] I infer the existence of two villages in 1680 from the fact of there being two priests among the Jemez at that time. This is by no means sufficient evidence, still it seems to imply the existence of a "Visita," besides the mission proper of San Diego. San Juan de los Jemez, in the documents relative to the reconquest by Diego de Vargas, appears as an abandoned pueblo, but the fact that a patron saint had been assigned to it shows that it had been occupied during the times anterior to 1680, and that a church or chapel had been erected in it. One of my informants at Jemez assured me that there were ruins on the delta of a pueblo *and* church, and that these were those of San Joseph. The Indians, however, were positive in locating San Joseph de los Jemez, much higher up on the mesas proper. I have carefully examined all the records of Vargas at Santa Fé, and incline to the belief that San Juan lay on the delta, and not on the heights. In the *Autos de Guerra* of 1696 (MS.) are three letters written to Vargas, giving an account of the bloody action with the Jemez Indians of June 29th, 1696, fought partly in the San Diego Cañon and partly at its mouth, by a Spanish detachment under command of the Captain Miguel de Lara and the Alcalde Mayor Fernando Duran de Chavez, and Indian auxiliaries of Cia. The date of these letters is July 1. The Alcalde Mayor says, *Carta al Gobernador Don Diego de Vargas*, that they attacked the Indians on the mesas, and that they resisted fiercely: "I nos fuimos rettirando asta el pueblo de S. Jua, i como nos uian retirar gusgaban ellos qe ibamos guiendo i asi qe salimos á lo esconbrado gunto al mesmo pueblo rebolvimos la rienda i les dimos vn apretton." This shows that San Juan was on a site where a cavalry charge was possible. The Captain Miguel de Lara, *Carta*: "Saliendo por la Siera que está de los Jemes á la parte

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del poniente emboscados con determinasion de ber si podiamos cojer en las milpas alguna jente, quisó nuestra fortuna que adonde fuimos á dormir aquella noche topamos los rastros que abian crusado jente en cantida para centro, dejamos el rumbo y los seguimos entendiendo que estarían en el pueblo de San Juan y no estaban si no que crusaron para la mesa, de allí determiné yr á reconoser el peñol donde estaba la xente y luego que llegamos nos resibieron con polbora y balas . . . de allí salí asta el pueblo de San Diego lidiando con ellos sin poder matar un Indio. . . . Salí de allí para San Juan y como dos tiros de arcabus de allí nos salió una emboscada y biendo la imposibilidad me bine por todo el camino paso á paso con la xente y mas abaxo nos salió otra y al llano." Bartolomé de Ojeda, *Carta*: "Fueron á dar á la mesa adonde estaban esos enemigos, luego tratamos de ir saliendo porque crusaban muchicimos rastros al pueblo de San Juan y biniendo que beniamos, nos binieron coqueando y nostros retirandonos á tierra llana dandoles lugar a que salieran." This indicates: 1. That the pueblo of San Juan was below San Diego; 2. That it lay near or in front of the mouth of the cañon. But the following passage in the *Auto* of Miguel de Lara of August 5, 1696, implies the contrary: "En el pueblo de San Juan de los Jemes que está en la mesa de ariba." Still this is obscure, since it may signify a village on the mesa *above* that of San Juan, and not San Juan proper. In the *Autos de Guerra* of 1694, Vargas, when speaking of the pueblos on the high mesas which he stormed, nowhere applies to them the name of San Juan (fol. 60 to 84). Escalante (*Relacion*, p. 159) remarks that, when Vargas made the desperate assault upon the formidable mesa on July 24, 1694, he ascended with the main body by a trail "que cae al Sudueste, y es la mas immediata al pueble antiguo de Gemex." This would indicate that that ancient village lay at the foot of the point, and between the two rivers. On page 173, concerning the uprising of 1696, he states: "Los Gemex de San Diego y San Juan se internaron y aseguraron en la sierra de Gemex." But, after all the testimony quoted, I must leave the final settlement of the location of the pueblo of San Juan to future investigations.

[1] *Ynterrogatorio de Preguntas*, 1681, MS. The Maestro de Campo Juan Dominguez de Mendoza testified: "Y en particular en el tiempo de D. Fernando

later Governor Hernando de Ugarte y la Concha put down another attempt at uprising, in which the Jemez were confederated with the Navajos and some of the Tigua villages.[1] During those occasional efforts against the Spaniards in which the Jemez and the Navajos were allies, the latter frequently made themselves a terrible scourge to the former, thus proving the fickleness of Indian alliances.

It is probable that the two pueblos were still inhabited in 1680, for there were two missionaries among the Jemez when the great rebellion broke out in that year,[2] besides a few Spaniards as an escort with the priests. One of the missionaries, Fray Juan de Jesus Maria, was probably one of the first victims in that terrible massacre. He was killed at Ginseua or San Diego de Jemez, near the hot springs, and buried by the Indians close to the wall of an estufa in the first square of the pueblo.[3] The other missionary, Fray Francisco Muñoz,

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de Arguello, que en el pueblo de Xemes ahorcó por traidores confederados con los Apaches veinte y nueva Xemes, depositando cantidad de ellos por el mismo delito, y haber muerto á Diego Martinez Naranjo." The Sargento Mayor Diego Lopez Zambrano states: "Desde el Gobernader D. Fernando de Arguello, que ahorcó, azotó, y despositó mas de quarenta Yndios." Don Fernando de Arguello was Governor of New Mexico between the years 1643 and 1646.

[1] *Ynterrogatorio, etc.* Testimony of Mendoza: "Y en el tiempo del Señor General Hernando de Ugarte y la Concha, se ahorcaron por traidores nueve de los dichos pueblos, confederados con los Apaches, Yndios Tiguas de la Ysleta, y del pueblo de la Alameda, San Felipe, Cochiti, y Xemes." The copy in my possession has "Teguas de la Ysleta," but it should be "Tiguas." This affair of the time of Governor Ugarte took place in 1650, and the conspiracy, according to the statements of the Indians themselves, was intended to embrace all the pueblos, although not all entered into the plot. *Interrogatorios de varias Indios*, 1681, fol. 135.

[2] The priests were Fray Juan de Jesús and Fray Francisco Muñoz.

[3] Vetancurt (*Crónica*, p. 319) describes the murder of this missionary as follows: "Aquí, con sentimiento de muchos del pueblo que defendían á su ministro, que veneraban por padre y lo procuraron defender, sacaron á la plaza al reverendo Padre Fray Juan de Jesús. . . . Hincado de rodillas, con actos de amor de Dios, esperaba su santa voluntad con un Cristo en la mano, en interin que altercaban en su defensa; cuando uno de los que le asistían, con una espada le pasó los pechos." Also *Menologio*, p. 275. Fray Francisco de Ayeta, *Nombres, Pa-*

with the Alcalde Mayor, Luis Granillo, and three soldiers, succeeded in escaping in the direction of Cia, hotly pursued by the Indians. But the Lieutenant-General, Alonzo Garcia, with a few mounted men, rescued them at midnight.[1]

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trias, y Provincias, de donde son Hijos los veinte y un Religiosos que han muerto los Indios Apostatas del Nuevo Mexico, MS., in his letter to the Viceroy, dated Sept. 11, 1680. The remains of Fray Juan de Jesús were exhumed by Diego de Vargas on the 8th of August, 1694. They were found in the first square of the pueblo close to an estufa, and showed that the body had been pierced by an arrow. The shaft of the arrow was found with the skeleton. *Certificasion de los Huessos del Venerable Pe Fray Jua de Jesús*, August 11, 1694, MS.: "Entrando en la primera plaza donde se hallaba la estufa, que señalan á un lado de ella los dichos Indio é India, se halla enterado dicho cuerpo, . . . se halló al levantarlo por las espaldas y parte del espinazo, tener una punta de jara del tamaño de poco mas de un jeme, cuyo palo estaba al parecer en su mero color del que usan y traen los Indios para herir y matar, de dicho genero de flechas."

[1] I have already alluded to this in the previous chapter. The Alcalde Mayor Granillo says of it (*Diario de la Retirada*, fol. 50): "Asistiendo en el pueblo de Indios Xemes tuvo noticia y aviso cierto de un Indio llamado Lorenzo Muza que había entrado un embajador de los enemigos de nacion Xemes, el qual entró en dicho pueblo cantando la victoria, y diciendo, ya matamos al Gobernador de los Españoles, y á otros muchisimos Españoles, y no ha de quedar ninguno vivo, porque es muchísima la cantidad de enemigos asi Apaches infieles, como todos los Christianos en general, y así coged las armas y natad Estos Españoles y Frayles que hay aquí, y así con efecto lo hicieron los dichos Indios Xemes, pues viendo el religioso, dicho Alcalde Mayor, y tres soldados que tenía en compañía, montarnos á caballo para retirarnos, envistieron los Indios Xemes con nosotros con tal osadia que nos vinieron siguiendo mas de dos leguas así ellos peleando como nosotros resistiendo, en cuya ocasion, fué Dios nuestro Señor seruido que nos encontrase el dicho Teniente General." The Lieutenant-General Garcia states (fol. 42), that the Jemez pursued the fugitives "Hasta el pueblo de Cia." On folio 39, he says he met them "en el campo como una legua del pueblo."

The above statements have a bearing upon the question whether there were two Jemez pueblos inhabited in August, 1680, and where they were located. Of one of them we are certain, — San Diego, in the Cañon and about twenty miles north of Cia. Had Fray Juan de Jesús been in the same village as the Alcalde Mayor and his three men, the Indians could not have taken him quietly out of the convent and held a long discussion over his fate. Luis Granillo was not to be trifled with in such a manner. He would have defended the priest at all hazards, and could have done it, and would have mentioned it in his testimony. On the contrary, he says that a messenger from the "Jemez enemies" entered the pueblo, shouting victory and bringing the news of the success of the out-

When Otermin made his unsuccessful campaign into New Mexico in the fall and winter of 1681, the Jemez retreated to the mesas.[1] They soon returned, however, to retire again to the heights, — possibly upon the approach of Don Domingo Gironza Petriz de Cruzate in 1688. In 1692 Vargas found them in a large pueblo on the top of one of the mesas, and he succeeded after long parleyings in entering their village. The people displayed marked hostility, however, and it required all the tact and courage of the Spanish commander to prevent an outbreak while he was there. He succeeded in conciliating them at last, as well as the Queres of Santo Domingo, who were in their company, and one hundred and seventeen children were baptized on the spot. The Jemez gave the usual promises to behave well in the future, while firmly determined, as the sequel proved, to resist the Spaniards to the utmost.[2]

I have already stated that the southern neighbors of the Jemez, the Queres of Cia, Santa Ana, and San Felipe, remained true to the Spanish cause, and that the Jemez therefore began to threaten, and finally to make war upon

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break. Hence there was still another pueblo of the Jemez besides the one in which Granillo was stationed. The distance of that pueblo from Cia did not exceed four leagues, that is, at most, twelve miles, which corresponds to the interval separating Cia from the ruin on the delta between the Guadalupe and San Diego streams. Escalante (*Relacion*, p. 173) says of the outbreak of 1696: "Los Gemex de San Diego y San Juan se internaron, y aseguraron en la sierra de Gemex." I therefore believe that San Juan de los Jemez was inhabited in 1680, as well as San Diego, and that it lay on the delta below the point where the high mesas terminate.

[1] *Ynterrogatorio de Preguntas*, and *Interrogatorios*, MS.

[2] *Autos de Guerra*, 1692, fol. 145. On the evening of the 24th of October he went from the Cerro Colorado to the foot of the mesa where the Jemez dwelt, estimating the distance at two long leagues. On the day following he ascended the mesa "cuya suvida es muy mala," and he describes the pueblo on its top as follows: "Reconozí tiene dos plazas y en cada vna quatro quartteles qe vienen á estar guarnezidas y zerradas teniendo vna entrada la vna de ellas qe passa á la otra."

them. This occurred in the fall of 1693 and the spring of 1694.

Diego de Vargas visited the Jemez on their mesa a second time on November 26, 1693.[1] They reiterated their false promises of fidelity, and as soon as the Spaniards turned their backs sent threatening messages to Cia and Santa Ana, and began to molest the inhabitants by driving off their stock. Vargas at last, after having chastised the northern Pueblos and made several unsuccessful attempts to storm the Black Mesa of San Ildefonso, turned against the Jemez also. On his way thither he received a message to the effect that, on the 21st of July, (1694,) the Jemez and Navajos had attempted to surprise Cia, killing four of its inhabitants, but had been finally repulsed.[2]

Vargas, as soon as he reached the friendly Pueblos of Santa Ana and Cia, held a council with the leading men of both villages, and then marched with his force, said to have numbered one hundred and twenty Spaniards and some auxiliary natives, for the mesas above the San Diego Cañon. He left Cia at eight o'clock at night, on the 23d of July, and at a distance of four leagues, near the junction of the two streams, divided his men into two bodies. One of these, consisting of twenty-five Spanish soldiers under command of Eusebio de Vargas and the Indian allies, was to enter the gorge of San Diego and climb the mesa on a dizzy trail, so as to reach the rear of the highest plateau, while the main body, led by Vargas himself, ascended from the southwest. The Spanish commander had ascertained that the Jemez had evacuated their village on the mesa, and retired to a still higher location north of it.[1] The operations were completely successful, and the Indians were taken between two fires; but they offered a desperate resistance. The total number killed on this occasion amounted to eighty-four, five of whom perished in the flames, and seven threw themselves down the cliffs rather than surrender.[2] Vargas remained on the mesas until the 8th of August, removing gradually the considerable stores found in the villages, and the prisoners, who numbered three hundred and sixty-one. Then, setting fire to both villages, he withdrew to San Diego, and thence to Santa Fé.[3] During his stay on the mesas he discovered a third pueblo, recently built there by the people of Santo Domingo, who had joined the Jemez tribe upon the approach of the Spaniards. That village is said to have been situated three leagues farther north, so that, within a distance of about twelve miles from the southern extremity, three pueblos had been constructed between 1688 and 1694, all of which were abandoned after the latter year.[4]

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[1] *Autos de Guerra*, 1693, fol. 50. He went from the mesa of the Cias to "la Cañada de los Xemes en cuya messa tienen su pueblo." It seems, therefore, that the Jemez, after having abandoned their villages below, probably after 1688, remained on the mesas until 1694.

[2] Bartolomé de Ojeda, *Carta á Don Diego de Vargas*, MS., in *Autos de Guerra* of 1694, fol. 58. He says that the men of Cia killed one of the captains of the Jemez.

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[1] *Autos de Guerra*, July 23, 1694, fol. 60: "Dijeron haver por las espaldas del peñol donde se han mudado los reveldes Xemes dejando su pueo de la messa vn camino qe por el sin ser senttida la gentte yndiana puede suvir y que para hazerlo y yr resguardada es prezisso mande con ella yr veynte y zinco soldados con vn cauo y que el rresto de dho campo podía yr y suvir por la qe tienen dhos Yndios para bajar á sus milpas como al dho puo de la messa qe han dejado qe será su distanzia de poco mas de vna legua desde la dha messa y suvida para dho peñol." He marched (fol. 62) "para el peñol poblado de los Xemes reveldes por las espaldas cuya trabesía sería de los leguas largas para tomar el rrumbo y suvida de el . . . y hauydo andado al parezer de quatro leguas largas serían la vna de la noche quando se diuidió la dha gentte qe hauía de hazer dha ymbazon por dho rrumbo yendo el dho Capitan Evseuio de Vargas y ella la gentte y campo que quedaua conmigo la haria por la suvida prinzipal de la messa del pueo despoblado." Escalante, *Relacion*, says that Vargas ascended from the southwest.

[2] *Autos de Guerra*, fol. 63, 64: "Á las cuatro de la tarde todo estaba terminado."

[3] Ibid., fol. 81 to 84.

[4] Ibid., fol. 70 to 77.

These historical facts warn the investigator not to take all the ruins in the Jemez region for those of pre-historic settlements. At least ten of them are those of villages that were abandoned only between 1598 and 1680, and three, perhaps four, those of pueblos built, occupied, and forsaken between 1688 and 1694. It is possible that some ruin may be a reconstruction of an ancient pueblo, or, it may be, built with material taken from some ancient ruin, so that the original character of the remains has become transformed by modern intrusion, especially in manufactured articles. These are points which the archæologist should not lose sight of when, as I sincerely hope, the ruins of the Jemez region may be made the object of a thorough study.

For the sake of completeness I will add here that San Diego de Jemez was reoccupied after 1694, and inhabited until June, 1696. Again a priest took up his residence at the pueblo, Fray Francisco de Casaus, otherwise known as Fray Francisco de Jesús. He soon noticed the evil designs of his Indian parishioners, and gave repeated warning to his superiors.[1] Vargas, however, paid no heed to them, and on the 4th of June of that year the last important insurrection of the Pueblos broke out. The priest of Jemez was murdered, and the tribe again fled to the mountains.[2] They had not time, however, to construct a new village on the mesas, but only to rear temporary shelter. Their first step was to secure assistance from the Navajos, from Acoma, and from Zuñi, and to make hostile demonstrations against Cia, Santa Ana, and San Felipe. There was a small Spanish detachment, commanded by the Captain Miguel de Lara, stationed at Cia, and that officer, together with the Alcalde Mayor of

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[1] *Peticion del Definitorio del Nuevo México á Don Diego de Vargas*, March 13, 1696. *Representacion del Definitorio*, March 22, 1696, MS.

[2] This event is too well known to require special authorities to be quoted.

Bernalillo, Don Fernando Duran y Chavez, took the field against the superior numbers of the insurgents on the 29th of June. A fierce conflict took place, partly in the San Diego Cañon, partly at the ruins of the pueblo of San Juan, in which the Jemez and their allies were routed with the loss of thirty men.[1] This defeat broke up the confederacy with Acoma and Zuñi, and caused the Jemez to flee to the Navajo country. When Lara reconnoitred the mesas in August following,[2] they were deserted. For several years the Jemez remained among the Navajos, until they finally returned to their old range, establishing themselves at or near the site of their present village.

In regard to the artificial objects found at the Jemez ruins, I refer to the splendid collections made for the Smithsonian Institution by the indefatigable Mr. Stevenson, and to his description of them.[3] On the site of Ginseua I noticed a coarsely glazed pottery, obsidian, and flint.

In conclusion, I would call attention to the name of one of the old Jemez pueblos, given to me by the Indians as "Pe-cuil-a-gui." "Pä-cuil-a" is the name for the tribe of Pecos, and the Pecos spoke the Jemez language. It would be well to investigate whether Pe-cuil-a-gui designates a Jemez pueblo inhabited previously to the secession of the Pecos. The division of the Jemez into two branches, separated from each other by the ranges of two distinct and different linguistic stocks, is an interesting phenomenon, though not unique in the ethnography of New Mexico. It occurred long before the sixteenth century. Nor should it be overlooked, that, according to the investigations of Mr. Gatschet, the Jemez and Pecos language belongs to the same group as the Tehua, Tigua, and Piro idioms, while the Queres, which intervened between the Jemez, Tanos, and Pecos, has not yet been classified with any of the former.[1]

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[1] *Autos de Guerra*, 1696, fol. 70 to 94. The letters of the Alcalde, of Miguel de Lara, and of Bartolomé de Ojeda. The last states the loss of the enemy at forty killed; Lara, at only twenty-eight. It is singular that Escalante, who had access to the official papers at Santa Fé, makes no mention of this engagament, which was the most bloody one of the war, and at the same time the most important, since it broke up the Jemez tribe and frightened the Acomas and Zuñis to such a degree as to cause them to withdraw their warriors. Of the Acomas eight were killed, of the Zuñis none.

[2] *Autos de Guerra*, fol. 14. Lara captured an Indian, who, in his deposition, stated that the Jemez had mostly fled to the Navajos, and that only a few families were with the fugitive Queres from Cochiti.

[3] *Report of the Bureau of Ethnology*, 1880–81, p. 417.

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[1] *Classification into Seven Linguistic Stocks of Western Indian Dialects*, U. S. Geographical Survey west of 100th Meridian, vol. vii. p. 416. In his former publication, *Zwölf Sprachen aus dem Südwesten Nord-Amerikas* (p. 47), the same authority says that the Jemez and Tigua are only dialectically differentiated: "Bau und Wortvorrath dieser Sprache gleicht durchaus dem des bloss dialektisch verschiedenen Isleta."

VI.

THE TIGUAS AND THE PIROS.

AT the close of the last chapter I stated that the language spoken by these two tribes is related to the idioms of the Tehuas, consequently also of the Tanos, Taos, Picuries, and Jemez. The Tigua language is virtually the same as that spoken at Taos and Picuries, the difference not being greater than that between dialects of Southern Germany and those of some of the northern Cantons of Switzerland.[1] It follows, and is recognized at Taos as well as at Isleta, that the most northerly and the most southerly pueblos in New Mexico are Tiguas, separated from each other by a stock linguistically related, the Tehuas, and by one whose linguistic affinities appear much more remote, the Queres. The phenomenon which we have observed in regard to the Jemez, namely, a division into two branches settled apart from each other, is repeated by the Tiguas. In an air line the most southerly village of the northern Tiguas, Picuries, lies eighty miles north of the most northerly settlement of their southern kindred. I have already alluded to this geographical division of the Tiguas in the first part of this Report,[1] but mention it again, since it took place at some yet unknown period anterior to the sixteenth century, and is therefore an historical fact coming down from pre-historic times.

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[1] I have heard Indians from Taos and from Isleta converse with each other a number of times, and always in their respective dialects, without the aid of an interpreter. Benavides, about the year 1629, recognized the Taos and Picuries as Tiguas. Of the latter he says (*Memorial*, p. 30): "Y aunque estos Indios son de nacion Tioas, por estar tan apartados dellos, suponen por si." Of the Taos he states "de la misma nacion que el antecedente, aunque algo varia la lengua." Mr. A. S. Gatschet, the eminent linguist, has termed the southern Tigua "Tano." He has in this been misled by Oscar Loew. The Tanos idiom is a dialect of the Tehua, and has no more in common with the idioms of Isleta and Taos than the Tehua has with the Tigua in general.

The Piros, as far as known, have no kindred in the northern parts of the Southwest; except in as far as their idiom is shown to be related to those of the tribes specified above. Their range lay south, adjacent to that of the Tiguas; and they were, and are to-day, by reason of their single village, Senecú in Chihuahua, the most southerly branch of the Pueblos. Although the Piros and Tiguas were not able to understand each other's speech, they were near neighbors on the Rio Grande, only a few miles formerly intervening between the last Tigua pueblo on the south and the extreme northerly village of the Piros.[2]

The two tribes were subdivided geographically into two groups: one of these subdivisions of each tribe dwelt in the valley of the Rio Grande, the other east of it, near the Salt Lagunes of the Manzano.

THE RANGE OF THE RIO GRANDE TIGUAS.

(Latitude 35°.2 to 34°.4 N.)

This narrow strip, limited to the immediate vicinity of the river on both of its banks, begins in the north about the present town of Bernalillo, and extends as far south as Los Lunas. Ruins are comparatively numerous, and justify the statements of the old Spanish chroniclers, who give the number of the Tigua villages on the Rio Grande at from twelve to sixteen.[1] At an early date in the annals of Spanish domination the number of the villages was reduced; not through depopulation, but through the consolidation of smaller settlements with larger ones, for the security of their inhabitants, as well as to congregate them about the missions. Thus, in 1680, the Tiguas occupied only four pueblos: Puaray, opposite Bernalillo; Sandia, or Na-fi-ap; Alameda, on the left bank of the river; and Isleta or Tshi-a-uip-a, thirty miles farther south, on the right bank. Of these villages, Sandia and Isleta were large, but Puaray was on the decline.[2] Between Alameda and Isleta were scattered a num-

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[1] Pages 123 and 129.

[2] Be-Jui Tu-ay, or the ruin of San Clemente, near Las Lunas, was a pueblo of the Tiguas, but in all probability not the extreme southerly settlement. On the other side, the Piros villages must have been quite near. Espejo (*Relacion del Viage*, p. 112) says that only half a league (1½ miles) separated the Tigua from the Piros country: "Y á media legua del distrito della hallamos otra que se llama la provincia de los Tiguas." In 1680, Isleta was the most southerly Tigua

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pueblo, and Sevilleta, to-day La Joya, the most northerly of the Piros. The distance by rail is about thirty miles.

[1] Castañeda, *Cibola*, pp. 167, 182. This applies to Tiguex alone. If Tutahaco was a Tigua country there would have been twenty pueblos in all. I shall examine further on whether "Tutahaco" may be considered as a Tigua district, and for the present limit myself to Tiguex. The *Relacion Postrera* (MS.) says: "El que esto dize vió doze pueblos en cierto compas del rio: otros vieron mas, dicen, el rio arriba: abaxo son todos pueblos pequeños, salvo dos que tienen á docientas casas." Oñate (*Discurso de las Jornadas*, p. 253) says that between Sabinal and Puaray there were many villages on both sides of the river. Espejo (*Relacion*, p. 112) mentions eight pueblos between La Joya and Bernalillo. Benavides in 1629 (*Memorial*, p. 22) says that on a stretch of twelve to thirteen leagues the Tiguas on the Rio Grande occupied fifteen or sixteen pueblos, with about seven thousand inhabitants.

[2] Vetancurt (*Crónica*, pp. 310 to 313) assigns to Isleta 2,000 inhabitants, to Alameda 300, to Puaray 200, and to Sandia as many as 3,000. It is certain that both Sandia and Isleta were comparatively important pueblos. As early as 1617 the former is mentioned as one of the leading missions of New Mexico. *Autos del Proceso contra el Soldado Juan de Escarramad*, 1617, MS. Also by Zárate-Salmeron, *Relaciones de todas las cosas*, par. 11. The first church of Sandia was already in existence in 1614. Zárate says: "El cuerpo del santo Fr. Juan Lopez estuvo oculto mas de 33 años, al cavo de los quales vn Indio del pueblo de Puaray . . . lo descubrió al Pe Fr. Estévan de Perea. . . . El qual cuerpo, ó por mejor decir huesos se llevaron, . . . hasta colocarlos en la Yglesia de Çandia."

ber of Spanish "haciendas" or "ranchos."[1] The site now occupied by the town of Bernalillo was therefore in the hands of the Tiguas until they finally abandoned their pueblos. Bernalillo was founded by Vargas in 1695,[2] after the

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[1] Compare *Diario de la Retirada*, 1680, fol. 35. From Sandia Otermin marched "para la estancia de Da Luisa de Trugillo," three leagues distant from Sandia (8¼ miles). Opposite to it stood the hacienda of the Lieutenant General Alonzo Garcia. "De este parage se marchó otras quatro leguas á la hacienda de los Gomez, sin ver mas enemigos y en todo este camino que hay desde el pueblo de Zandia hasta esta estancia, se hallaron todas disiertas robadas, asi de ganados como de las cossas de casa, siendo muchas las haciendas que hay de una y otra vanda del rio." The hacienda of the Maestro de Campo Juan Dominguez de Mendoza lay "en la jurisdiccion que llaman Atrisco tres leguas antes del pueblo de la Alameda." *Ynterrogatorio de Preguntas* (testimony of Mendoza). According to the *Testimonio de Diligencias sobre la Fundacion de Albuquerque de Santa Maria de Grado, de Pujuaque, y Galisteo*, (1712, MS.,) there were, before the outbreak of 1680, nineteen ranchos, haciendas, etc. of Spaniards in the vicinity of where Albuquerque now is. See also *Peticion de los Vecinos de Albuquerque al Cabildo de Santa Fé*, 1708, MS.

[2] The date of the foundation of Bernalillo is taken from Escalante, *Relacion*, p. 169, sesto cuaderno. In the archives of the Surveyor General's office at Santa Fé there exists a *Revalidacion de la Merced de Bernalillo*, 1704, MS. The original grant to Felipe Gutierrez was presented on December 3, 1700, and claims "un Citio que se alla de esta banda del Rio del Norte en frente de la casa del Capitan Diego Montoya que llaman el Ancon del Tejon que coje legua y media de distrito."

I attach importance to the location of old Spanish habitations, because some of them in other parts of New Mexico have been taken for Indian ruins. For example, on the road from Santa Fé to Peña Blanca, eight miles southwest of the capital, near Bernalillo, there is a ruin which, I am informed, has been regarded as that of a pueblo, while it is in fact only that of a former hacienda or estancia of Juan Ramirez. Its owner was implicated in the assassination of Governor Luis de Rozas in 1642, and, although pardoned, he fled the country in the following year. Thereupon his property was confiscated, and converted into a post for one officer and fifteen soldiers. In 1680 that post no longer existed. See *Carta de Justicia, Autos, y Comisson al Sargentto Mayor Franco Gomez*, October 20, 1643, MS.: "Y porque la dha esttancia y sitio que estta á la orilla del Rio del Nortte entre el pueblo de San Phelipe y el de Sandia y ser el comercio mas principal y por çosso de los poblaziones de estte dho Reyno." According to the *Diario de la Retirada* (fol. 32 *et seq.*), the last Spanish house between San Felipe and Sandia was the hacienda of Cristobal de Anaya, two leagues south of San Felipe, in the vicinity of Algodones.

The three pueblos of Puaray, Sandia, and Alameda were burned by order of

Spanish power had been re-established. Albuquerque dates back to the year 1706.[1]

The valley of the Rio Grande is very fertile, but from Bernalillo to Albuquerque the cultivable lands lie mostly on the east side of the river, where the gravelly "lomas," or dunes, lie nearly two miles back from the stream. Beyond these dunes extends an arid table land to the foot of the Sierra de Sandia. The town of Bernalillo lies 5,084 feet above sea level, and the base of the Sandia Mountains is not over five miles distant. The summit is 10,609 feet high, and the western front descends in almost perpendicular cliffs and crags. The appearance of this chain, as seen from the town or from the opposite river bank, is therefore unusually impressive.

There stood at least one pueblo, perhaps two, on the site of Bernalillo during the sixteenth century, and there is no doubt that the group of villages which the Tiguas occupied on both sides of the river, between the Mesa del Cangelon and Albuquerque, was what the chroniclers of Coronado's expedition call Tiguex or Tiguez. Which of the numerous villages was the one destroyed by the Spaniards in the winter of 1540, is not ascertained, but it certainly was not Puaray. The description given by Castañeda of the locality is confused, and conflicting.[2] The events at Tiguex are a dark stain on

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Otermin, in December, 1681. *Ynterrogatorio de Preguntas.* In 1683 they had not been rebuilt. *Declaracion de vn Yndio Pecuri*, August 1, 1683.

[1] *Testimonio del Mandamiento del Virrey Duque de Alburquerque sobre la Fundacion de la Villa de Alburquerque*, 1706, MS. Escalante, *Relacion.*

[2] Castañeda (*Cibola*, p. 167, chap. iv., part ii.) describes Tiguex as follows: "La province de Tiguex contient douze villages, situés sur les rives d'un grand fleuve; c'est une vallée qui a environ deux lieues de large. Elle est bornée, à l'occident, par des montagnes très-élevées et couvertes de neige. Quatre villages sont bâtis au pied de ces montagnes, et trois autres sur les hauteurs." The great river cannot have been any other than the Rio Grande, but the high mountains to the west of it are somewhat puzzling. I have not the Spanish text of Castañeda at my command, and therefore cannot determine how far the word "occident" may be correct. Ternaux-Compans is a not very re-

the name of Coronado. He erred through weakness and credulity, and his subordinate, Garcia Lopez de Cardenas, displayed cruelty and deliberate treachery. The statements of Castañeda alone would not warrant such accusations, for that chronicler is extremely prejudiced in everything concerning the officers of the expedition, and therefore unreliable. But the fact that Cardenas was afterwards severely punished for his misdeeds at Bernalillo, and the testimony

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liable translator. As to the width of the valley, two leagues, or a little over five miles, agrees with the distance from the foot of the Sandia Mountains to the river banks. North of Tiguex was the "province of Quirix," who were evidently the Queres; and from Tiguex Coronado communicated with the Cias. There were no pueblos between Tiguex and the Queres, either those on the Rio Grande or those on the Jemez River. Hence Bernalillo is the only point corresponding to these data. If the statement that the high mountains were west of the Rio Grande is really in the original, then the only places which would agree with the description are Cochiti, thirty miles north among the Queres, and the vicinity of Socorro, ninety miles south of Bernalillo. But neither agrees with the other data, and especially not with that remarkable statement of Castañeda (p. 182.), "Tiguex est le point central." The *Relacion Postrera* states: "Desde allí (Acuco or Acoma) al rio de Tiguex ay veinte leguas: el rio es quasi tan ancho como el de Sevilla, aunque no es tan hondo · va por tierra llana: es buen agua: tiene algun pescado, nasce al norte." From Acoma to Bernalillo the distance is, indeed, very nearly the number of miles (55) indicated, not by the wagon road, but in a direct line. Conclusive geographical evidence lies in the description of the route from Tiguex to Pecos. From no other point on the Rio Grande could such a route be traced. Socorro lies in an air line 130 miles from Pecos, and no troop of cavalry, however well guided by Indians, could make the trip in four days. Considering the long detours required, the route from Cochiti is entirely different from the one described. In place of only four villages, the Spaniards would have seen at least half a dozen. Castañeda must therefore have made the mistake of placing the Sandia Mountains west of the river instead of east, a mistake quite possible after a lapse of twenty-eight years, or his translator must have committed the error.

For the historical evidences in favor of the identity of Bernalillo with Tiguex I refer to Part I., p. 129, note 2, and would only add that Mota-Padilla (*Historia de la Nueva Galicia*, chap. xxxii. p. 160) says that the village of the Tiguas, where the Spaniards lodged, was called "Coofer"; this I have not been able to identify.

As for the word Tiguex, the Tiguas call themselves Ti-guan; but a woman of Isleta in my presence plainly pronounced the plural of that name Ti-guesh; "x" in old Spanish records of Mexico has the sound "sh."

of other eyewitnesses, prove how reprehensible was his conduct.[1]

I will not enter into details concerning this bloody episode. The origin of the conflict is variously stated, and was in all likelihood an inevitable result of the contact of people unable to understand each other, with views and customs directly at variance. Where the first wrong lay I shall not attempt to decide, but the massacre of prisoners after their surrender by order of Cardenas was not, as that officer afterwards alleged, the unfortunate result of a misunderstanding.[2]

Whether the ruin on the Mesa del Cangelon is that of a Tigua pueblo, or whether it was the ancient pueblo of the Queres of Santa Ana, is still doubtful.[3] But it is, at all events, the first of a series of ruins scattered along the right bank of the Rio Grande. The bluffs on that side hug the river bank quite closely, leaving only a narrow strip of fertile bottom, but affording excellent sites for lookouts. A huge lava flow approaches these bluffs from the west, and reaches the river south of Bernalillo, receding from it again near Albuquerque. It is separated from the great lava deposits of San Felipe by the sandy bottom of the Jemez stream, and by a low mesa with reddish soil that faces Bernalillo. On the brink of that mesa stand four ruins, directly opposite the latter town.

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[1] The most circumstantial report on the events at Tiguez, besides the one of Castañeda, is contained in Mota-Padilla, *Historia*, chap. xxxii. He says of the massacre of the prisoners: "Esta accion se tuvo en España por mala, y con razon, porque fué una crueldad considerable; y habiendo el maese de campo Garcia Lopez pasado á España á heredar un mayorazgo, estuvo preso en una portaleza por este cargo."

[2] Ibid.: "Mataron con crueldad los nuestros mas de ciento y treinta gándules, teniendolos por bestias porque no entendían, y es que no había interprete." Castañeda throws as much blame upon Coronado as upon his lieutenant. But I think Castañedo is not to be trusted in a case like this. He is quite reliable in everything where his companions are not concerned, but as soon as he treats of the officers or men of the expedition he is either strongly for or violently against them, as his slanders upon Fray Marcos de Nizza plainly show.

[3] I have lately been informed that there is a ruin opposite Algodones, in which case the one on the Cangelon must have been a Tigua pueblo. Not having investigated the locality myself, I withhold my opinion.

North of the bridge across the Rio Grande lie the remains of a considerable village. I have not been able to ascertain whether it was one of the historical pueblos of Coronado's time, or whether its abandonment antedated 1540. The name given to me by the Sandia Indians, Kua-ua, seems to designate the site and not the ruin. Still it may also have been the name of the latter. Figure 24 of Plate I. is intended for a representation of its ground plan, and it will be seen that the village consisted of a main building with two wings, and a projection from the middle parallel to the wings. Another ruined structure, measuring 55 by 22.3 meters (168 by 68 feet), stands in front of this building, almost equidistant from the eastern ends of the northern wing and the central projection. The northern wing is 149 meters (455 feet) long, the west side of the house 132 meters (403 feet), and the southern wing 60 meters (210 feet); so that this building is one of the largest of the pueblo houses of New Mexico.[1]

It is impossible to determine exactly how many stories this great house originally had, but it seems almost certain that there were more than two in some parts of it; I therefore estimate its population at not over six hundred souls.

I was unable to detect any estufas, yet it is by no means certain that there were none outside the dwellings; the ground is covered with rubbish, and the circular depressions might have escaped my notice or have become filled up; or they may have been built inside among the rooms. The foundations show rubble and adobe, and most of the walls are of the latter material. Their thickness varies from 0.17 to 0.38 m. (7 to 15 inches), and the average size of fifty-five rooms is 4.1 by 2.8 m. (12⅓ by 8½ feet).

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[1] The large house at Pecos has a perimeter of 362 meters (1190 feet), and the "Pueblo Bonito" comes next to it; the length of the two wings at Kuaua and of the western side, together, is 350 meters (1068 feet).

The pottery is largely of the type with coarsely glazed decorations, and I saw no corrugated fragments; but common cooking pottery, plain black, was also well represented. Much obsidian, moss-agates, chips of flint and lava, broken metates and "manos," and a few bits of turquoise, were the other objects lying about on the surface. The site also bears the Spanish name of "Torreon"; but I saw no trace of a round tower, as the designation would imply.

South of the bridge a short distance from Kuaua, on a rather elevated dune, are low mounds covered with bits of pottery, obsidian, and rubble. One of them forms a hollow quadrangle about 30 meters square (95 feet), and 300 feet south of it are two others. The mounds show great decay in both places, as if they were the ruins of houses much older than those of Kuaua.

In front of the southern portion of the town of Bernalillo, in a situation very similar to that of Kuaua, on a gravelly bluff overlooking the river, from which a magnificent view is enjoyed of the formidable Sierra de Sandia, stand the remains of the historic pueblo of Puar-ay, or Village of the Worm or Insect.[1] For its ground plan I refer to Figure 25 of Plate I. It was smaller than Kuaua, and I doubt whether its population ever exceeded five hundred souls.[2] Nothing but foundations and mounds remain, but recent excavations have revealed fairly well preserved rooms beneath the rubbish. The manufactured objects are like those at Kuaua, and the main buildings were built of adobe. Two smaller constructions, lying east and south of the first, appear to have been built of blocks of lava or trap. The one east may have been the chapel which existed at Puaray until 1681.

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[1] Vetancurt had heard of this signification of the word. *Crónica*, p. 312: "El nombre Púray quiere decir gusanos, que es un genero de que abunda aquel lugar." Whether by "gusano" a worm or a beetle, a centipede or a julus, is meant, I cannot tell. I noticed at the ruins of Kuaua a number of Coleoptera of a singular species, which attracted my attention the more, as beetles are scarce in New Mexico.

[2] Vetancurt (Ibid.) assigns to it "doscientas personas de nacion Tiguas y labradores españoles."

This village is also called "Pueblo de Santiago," although the patron saint of Puaray was St. Bartholomew.[1] From what this modern appellation was derived I cannot surmise. That it was really Puaray was asserted by Indians of Sandia, and it also follows from the location of the so called Gonzalez grant.[2] The correct location of Puaray is not devoid of importance, since it is not only an historical pueblo in the general sense, but a site around which cluster historical reminiscences of an almost romantic character.

That Puaray existed in 1540 may safely be assumed, although its name does not appear in the annals of that time. It looms up conspicuously, however, during the second Spanish attempt to penetrate into New Mexico. This was the expedition of 1580, when Francisco Sanchez Chamuscado, with eight soldiers and seven Indian servants, accompanied the Franciscan missionaries Fray Francisco Lopez, Fray Juan de Santa Maria, and the venerable Fray Agustin Rodriguez from Santa Barbara in Southern Chihuahua to the Tigua country about Bernalillo. It was a remarkable undertaking, and accomplished with wonderful tact as well as courage. Not a single conflict with the Indians marred the harmony of Chamuscado's intercourse with the Pueblos, and he succeeded in reaching Zuñi on the west, and in visiting the Salines of the Manzano on the east of the Rio Grande without the slightest opposition. But after the escort had left the friars at their posts, the Indians turned against the defenceless missionaries and slew them one after the other.

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[1] Ibid.: "La iglesia es al apostol San Bartolomé dedicada." Zárate, in *Relaciones de todas las cosas*, par. 7, makes a distinction between the pueblo of Santiago and Puaray. After stating that Fray Fr. Lopez and Fray Agustin Rodriguez had established themselves at Puaray and the former had been killed there, he adds: "El capitan del pueblo dió muestras de sentimiento por la muerte del religioso y porque no sucediese lo mismo con el religioso lego que quedaba, se lo llevó consigo al pueblo que se llama Santiago, legua y media el rio arriba." On the other hand, Espejo, who followed the tracks of the murdered missionaries less than one year after their death, says of the Tigua pueblos, "one of which is called Puala, where we found that the Indians of this province had killed Fray Francisco Lopez and Fray Agustin Ruiz." If Puaray is where I have been told, then the pueblo "of Santiago" is the one on the Mesa del Cangelon.

[2] *Venta Real al Capitan Juan Gonzalez*, 1711, MS. Vetancurt (*Crónica*, p. 312) locates Puaray "cerca de una legua de Zandia á la orilla del rio." Otermin (*Interrogatorios de Varios Indios*, fol. 124) says: "En este parage del Rio del Norte, y campo que da vista á los tres pueblos de la Alameda, Puary, y Zandia." Nothing can be gathered from the *Ynterrogatorio de Preguntas* except that the three pueblos mentioned lay near to one another. Villagran, who was at Puaray eighteen years after the death of the missionaries, intimates that at least two of them were killed there. *Historia de la Nueva México*, 1610, canto xv. fol. 137.

Of the murder of Fray Juan de Santa Maria I have already spoken. Fray Francisco Lopez was certainly killed at Puaray, and it is not unlikely that Fray Agustin Rodriguez met death at or very near the same pueblo. This occurred in the winter of 1580, but the exact dates are not known.[1] The reports of this massacre reached Santa Barbara in the following summer, and brought about the expedition of Espejo, which was as successful and conducted with as much skill as that of Chamuscado. Espejo had only fourteen Spaniards with him, and it is well established that he penetrated farther west than the Moquis. At Puaray the Indians fled on his approach, fearing he might take vengeance for the murder of the friars; but he succeeded in allaying their fears in time.

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[1] I have treated at length of this episode elsewhere. All the authorities except Zárate-Salmeron mention the death of Father Rodriguez as having occurred at Puaray. Villagran (*Historia*, fol. 137) is perhaps the most positive witness, and he antedates Zárate by nearly thirty years. Yet the latter deserves great consideration, for he came as a missionary at a time when the history of the murder of the monks was much talked of in New Mexico, owing to the recovery of the body of one of them. I regard them as conjectural, as there was no means of fixing the day, and scarcely the month. Vetancurt (*Menologio*, pp. 404, 412) places the death of Father Lopez on the 21st, and that of his companion on the 28th of December. In this he only copies the martyrologies. Artur von Munster, *Auctarium Martyrologii Franciscani: Das ist Vermehrung dess Franciscanischen Ordens Calenders*, 1659, pp. 675, 691. Upon what grounds the dates were established I do not know.

In 1591 Castaño de Sora also visited the Tigua country, and held peaceable intercourse with its people.[1] This was the case also when Oñate moved up the Rio Grande valley, in 1598, with his body of soldiers and colonists. He spent a night at Puaray. In one of the larger rooms, in which the priests who accompanied him were quartered, they discovered a painting on the walls partially effaced representing the killing of the missionaries in 1580. Oñate gave strict orders not to show any resentment at the sight, but to act as if the painting had not been noticed.[2]

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[1] *Memoria del Descubrimiento*, p. 256: "Y por lo que allí había y en toda la tierra nos habían dado, que eran estos pueblos los que habían muerto los padres que á nos dijeron, habían andado por aquí." He saw fourteen pueblos "á vista deste pueblo y á la orilla del rio." Some of the inhabitants fled upon Castaño's approach, but others were friendly.

[2] Oñate arrived at Puaray on the 27th of June. *Discurso de las Jornadas*, p. 254. The story of the painting is related by Villagran, *Historia*, fol. 137. The Indians had covered the painting with whitewash, but the colors shone through:—

"Y haziendo jornada en vn buen pueblo,
Que Puarai llamauan sus vezinos,
En el á todos bien nos recibieron,
Y en vnos corredores jaluegados,
Con vn blanco jaluegue recien puesto,
Barridos y regados con limpeça,
Lleuaron á los padres, y allí juntos,
ueron muy bien seruidos, y otro dia,
Por auerse el jaluegue ya secado,
Dios que á su santa Iglesia siẽpre muestra
Los Santos que por ella padezieron,
Hizo se trasluziesse la pintura,
Mudo Predicador, aquí encubrieron

Up to 1680 there is nothing important to relate concerning Puaray. The Indians of that village participated in the outbreak of that year, and they, as well as those of Sandia and Alameda, evacuated their pueblos upon the approach of Otermin's forces in 1681. When it became known to the Spanish commander that negotiations at Cochiti with the rebels had failed through their duplicity, he ordered the three Tigua villages of Puaray, Sandia, and Alameda to be burned. Puaray was never reoccupied; it became the property of Captain Juan de Uribarri, and, later, of Captain Juan Gonzalez. It is to-day a bleak and desolate spot, treeless and barren, exposed to the high winds that sweep through the Rio Grande valley and to a scorching sun. The view from it eastward is highly impressive and grand; to the west it embraces only arid plateaux and forbidding crests of black scoriæ and lava.

Where the church and the school of the Christian Brothers at Bernalillo now stand, vestiges of a former pueblo which had been destroyed by fire were exhumed; also metates, skeletons, and jars filled with corn-meal. In addition to these remains I was told of a ruin near Sandia, of one near Los Corrales south of Bernalillo, and of the old pueblo of Alameda, about midway between Bernalillo and Albuquerque; but I visited none of these places.

Con el blanco barniz, porque no viessen
La fuerça del martirio que passaron,
Aquellos Santos Padres Religiosos,
Fray Agustin, Fray Iuan, y Fray Frãcisco.
Quios cuerpos illustres retratados,
Los baruaros tenían tan al viuo,
Que porque vuestra gente no los viesse
Quisieronlos borrar con aquel blanco,
Quia pureza grande luego quiso,
Nostrar con euidencia manifiesta,
Que á furo azote, palo, á piedra fueron,
Los tres Santos varones consumidos."

If the ruin at the Cangelon is that of a Tigua village, we should then have at least eight pueblos on a strip about thirteen miles long, from north to south, and quite narrow transversely. There are few localities in New Mexico where there are so many villages in such close proximity to one another. These villages were mostly built of adobe, and the testimony of the chroniclers of Coronado's time is unanimous, that the houses at Tiguex were of sun-dried brick, and not of stone or rubble, like those of other Pueblo groups.[1]

It is also noteworthy that the number of pueblos mentioned by Espejo as inhabited by the Tiguas in 1582 corresponds to the number of ruins pointed out to me about Bernalillo. Most of them are of pueblos of ordinary size, and the number of inhabitants they could shelter is in conformity with the number of people who are said to have inhabited in 1680 the three remaining ones of Puaray, Sandia, and Alameda.[2]

I have no knowledge of the existence of ruins in the immediate vicinity of Albuquerque, nor of any south of that town on the bleak level extending east of the Rio Grande between it and the northern end of the Manzano chain. The Sandia Mountains terminate north of the latitude of Albuquerque, or rather they merge into the Sierra del Manzano. The two are but the beginning of a long cordillera that runs in sight of the Rio Grande as far south as El Paso del Norte.[3] Opposite Albuquerque the river

[1] I limit myself to quoting Castañeda, *Cibola*, p. 169. *Relacion Postrera:* "Estas casas con las paredes como á manera de tapias. De tierra é arena muy recias: son tan anchas como un palmo de una mano." Mota-Padilla, *Historia*, p. 159: "Los pueblos de Tzibola son fabricados de pizarras unidas con argamasa de tierra; y los de Tigües son de una tierra guijosa, aunque muy fuerte."

[2] I judge of the size of the pueblos which I have not seen by descriptions. Vetancurt (*Crónica*, p. 312) estimates the population of Sandia, Alameda, and Puaray at 3,500. This would give for the eight original pueblos the reasonable average of four hundred souls each.

[3] The elevation of Albuquerque is 4,919 feet (Wheeler); of Isleta, 4,881

bottom on the west is comparatively narrow, and hugged by abrupt volcanic cliffs. I have inquired at Atrisco, the settlement opposite old Albuquerque on the west bank, and invariably received the answer that there are no ruins nearer than the Mesa de las Padillas, a few miles north of the present pueblo of Isleta.

The Mesa de las Padillas is a projection from the rim of the volcanic plateau that lines the Rio Grande on the west. It is only 36 meters (119 feet) high, and quite steep. On its summit stands a small ruin in the shape of an L, one wing of which is 55 meters (180 feet) the other 53 meters (174 feet) long. Each of these wings, which stand not exactly at right angles to each other, contains two rows of cells, the longer having in all thirty-two, the shorter twenty-eight rooms. An estufa, circular and 6.6 m. (22 feet) in diameter, stands about eight meters from the longer wing. The pottery is of the glazed kind, mingled with corrugated and the ancient black and white. I found no obsidian, but fragments of trap and lava, and flint chips. The buildings were of lava, and probably but one story high.

This small pueblo is called by the Tiguas of Isleta, according to the investigations of Mr. Lummis, Pur e Tu-ay, but the mesa itself is named Hyem Tu-ay. Mr. Lummis also heard a tradition that the village had to be abandoned in consequence of the number of venomous snakes on the mesa.

I am informed that there is a more extensive ruin at the

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feet. The highest peak of the Manzano chain is 10,086 feet. The cordillera mentioned divides south of the Sierra del Manzano into the following sub chains: Sierra Oscura, Sierra de San Andrés, Sierra de los Organos (9,108 feet), Sierra de la Soledad, and Sierra del Paso. Formerly the whole chain, including the Sandia, was called Sierra de los Mansos. Rivera, *Diario y Derrotero*, etc., 1736, p. 29: "Con la diferencia de haverse terminado el curso de la Sierra de los Mansos. Que desde el Presidio de el Passo, sin intermision corre hasta la vanda de el Ueste de la uilla de Alburquerque."

foot of the Mesa de las Padillas, on its northern side; that there are ruins on the east side of the Rio Grande, at the Ojo de las Cabras; and at least one ruin on the flanks of the volcanic heights west of Isleta. Adding to it Isleta, and the ruins of Be-jui Tu-ay, or San Clemente, near Los Lunas, this southern group of Tigua settlements, provided they were simultaneously occupied, appears to have consisted of at least six villages.

The earliest mention I find of Isleta dates from the year 1629; it was then already a mission with a resident priest.[1] This leads me to infer that the pueblo existed in the sixteenth century, although positive proof is wanting. In 1680, the village is credited with 2,000 souls.[2] Its inhabitants did not participate in the butchery of 1680, owing to the fact that the Spanish settlers in the lower Rio Grande valley took refuge in that pueblo as soon as the uprising occurred, and their communications with Santa Fé became interrupted. Their position at Isleta, however, was untenable, and they marched hurriedly southward.[3] When Otermin on his retreat from Santa Fé came in sight of Isleta, he found the place already abandoned by the Indians, who were joining the rebels.[4] In 1681 Otermin succeeded in surprising Isleta, and capturing it without resistance; and upon his return he took several hundreds of the Tiguas along to the south, where they were subsequently settled at Isleta del Sur, in Texas, where there is to-day a pueblo of Tiguas. Northern Isleta remained vacant and in ruins until 1718, when it was repeopled with Tiguas who had returned from the Moquis, to whom the majority of the tribe had fled during the twelve years of Pueblo "independence."[1]

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[1] Vetancurt, *Crónica*, p. 302: "En 22 de Julio, el año de 629, llegaron al convento de San Antonio de la Isleta, donde estaba entonces el custodio, algunos cinquenta Xumanas á pedir religiosos que les enseñasen la ley del Evangelio." The Custodio must have been Fray Estéban de Perea, since he arrived in 1629, with a number of priests. In 1636, Fray Francisco de la Concepcion was resident priest there. *Autos sobre Quexas contra los Religiosos del Nuevo México*, 1636, MS. Fray Juan de Salas is credited with the erection of the "convent" of Isleta. *Crónica*, p. 311: "El convento es de claustros altos y bajos, que el venerable Padre Fray Juan de Salas edificó." This must have been between 1628 and 1643; probably about 1630. In 1643 Father Salas was priest at Cuaray.

[2] Vetancurt, *Crónica*, p. 311.

[3] *Diario de la Retirada*, fol. 43 *et seq.*

[4] Ibid., fol. 35: "Y otro dia prosiguió su marcha para el dicho pueblo de la Ysleta, y pasando á el lo halló despoblado de toda la gente y naturales, y sin

Previous to the uprising Isleta had received accessions from the Tigua settlements near the Manzano, when those pueblos were abandoned in consequence of the Apaches.[2] This explains why the southern Tiguas of Isleta in Texas claim to have descended from Cuaray at the Salines. The fugitives from the latter village fled to Isleta, and were subsequently transported thence to the south. Old Isleta, the one abandoned after 1681, stood very near the site of the present village, on a delta or island between the bed of a mountain torrent and the Rio Grande, from which comes its Spanish name. I am not informed whether any remains of this pueblo are yet to be seen.

It is not unlikely that the cluster of Tigua villages near Isleta was the group of pueblos called Tutahaco by Castañeda and others; but the evidence is not sufficiently clear to warrant the assertion. The number of villages credited to

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persona ninguna así religiosos como vecinos." Vetancurt (*Crónica*, p. 311) states that there were seven "ranchos" of Spaniards in the immediate vicinity of the pueblo previous to the insurrection.

[1] *Documentos formados por Don Antonio de Otermin sobre el levantamiento del Nuevo México*, 1681, MS. Escalante, *Carta al Padre Morfi*, par. 5. The latter states the number of Indians brought from Isleta by Otermin at 385, 115 having fled while Otermin marched northward. This explains the discrepancy between Escalante and Vetancurt (*Crónica*, p. 311), who gives the number of Tiguas carried south by Otermin at 519. The settlement of the Tiguas at Isleta del Sur is too well known to need quotations. See Part I., p. 86.

[2] I shall treat of this more extensively later. The Indians of southern Isleta told me that they had originally come from Cuaray.

Tutahaco is variously stated as from four to eight, and I have no means of determining how far from Tiguex to the south these were situated.[1]

It is also impossible to establish which was the last Tigua pueblo on the Rio Grande below Isleta. Be-jui Tu-ay is a Tigua name, signifying the village of the rainbow, and it was in all probability inhabited by Tiguas. Farther south, as far as La Joya, it is uncertain which pueblos were Tiguas and which belonged to the Piros. As stated in the beginning of this chapter, the two tribes were near neighbors, — unusually near to each other for the custom of tribal seclusion and isolation peculiar to Indian institutions.

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[1] Castañeda assigns to Tutahaco and to the lower course of the Rio Grande eight villages (p. 182): "Tutahaco, huit (on trouve ces villages en descendant le fleuve)." Tutahaco must therefore have been on the Rio Grande. It was also below Tiguex, since he says (p. 76): "Le général remonta ensuite la rivière et visita toute la province jusqu'à ce qu'il fut arrivé à Tiguez." This number of villages included those of Tutahaco, and four villages much lower down, which were seen by a Spanish officer in the fall of 1541 (p. 139): "Un autre officier suivit la rivière en descendant, pour aller reconnaître quelques autres cours d'eau qui suivant les habitants de Tutahaco, se trouvaint de ce coté. Il s'avança pendant quatre-vingts lieues, découvrit quatre grands villages qui se soumirent, et parvint jusqu'à un endroit où le fleuve s'enfonce sous terre." Deducting these four pueblos from the number given by Castañeda collectively, it leaves four for Tutahaco alone. Tutahaco is identified with Acoma by Jaramillo, *Relation du Voyage fait à la Nouvelle Terre* (French translation of the Spanish original, p. 370): "Entre le village de Civola et Tihuex, à une journée ou deux environ est un village situé dans une situation très-forte sur un rocher taillé à pic; il se nomme Tutahaco." Mota-Padilla (*Historia*, p. 159) calls it Atlachaco, and also confounds Acoma with the Tutahaco of Castañeda, since he places the "fortified pueblo, or surrounded by cliffs," in the "province" of Tiguex: "D. Francisco Vazquez Coronado pasado el invierno, trató de salir de Tzibola en demanda de la provincia de Tigües, que distaba sesenta leguas, en cuyo medio se halló un pueblo fortalecido y cercado de peñas, al que se le puso por nombre Atlachaco, y se llama Tigües la provincia, por un rio muy caudaloso, que los Indios conocian por este nombre." I am convinced that Castañeda is right in as far as he speaks of a cluster of pueblos south of the region of Bernalillo on the Rio Grande; but I suspect that he was mistaken in regard to the name. Tutahaco sounds suspiciously like Tuthla-huay, the Tigua name for the pueblo of Acoma.

THE RANGE OF THE PIROS ON THE RIO GRANDE.

From the country of the Tiguas on the Rio Grande it might seem more appropriate to pass over to the range occupied by Indians of the same stock, east of the Sierra del Manzano, rather than to turn to the territory held by a tribe speaking a different language. Still I prefer the latter course, in order to remain in the same geographical section, and because the fate of the Tiguas and Piros of the Salines carried them back to their kindred in the Rio Grande valley, whence possibly they had originally drifted into the valleys and plateaux surrounding the eastern salt lagunes.

The stretch of ruins lining the river, to which I alluded in part in the preceding section of this chapter, continues south of Los Lunas, and as far as the northern extremity of the Jornada del Muerto. That is, ruins are scattered at irregular intervals, sometimes fronting each other on both banks, again alternately situated on the east and on the west. The Rio Grande bottom below Isleta in former times was covered largely with shrubbery and groves of cottonwood trees. Names like La Joya, Sabinal, and Alamillo, indicate the former existence of a denser vegetation than that which is found at these places at present.[1] Its disappearance is due, not to a change in the amount of atmospheric precipitation and an increase of aridity in the climate, but simply to the necessity of clearing the fertile bottom for agricultural purposes. This growth of trees and bushes was not continuous; it appeared in patches and strips, interrupted by expanses of arid sand, and by the plots where the Indians of the pueblos raised their crops by means of irrigation. The number and extent of these fields, and of the irrigating ditches connected with them, attracted the attention of Spanish explorers at an early day.

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[1] The chroniclers of Coronado's journey speak only in general terms of the Rio Grande valley south of Isleta, and as far down as Mesilla. But when Chamuscado ascended the course of the river in 1580, the Indian settlements and their cultivated patches were noticed from San Marcial on to the north. *Relacion Breve y Verdadera* (Doc. de Indias, vol. xv. pp. 147, 148): "Á veinte é un dias del mes de Agosto, decubrimos un pueblo que tenía quarenta y cinco casas de dos y tres altos; y así mismo descubrimos grandes sementeras de maiz, frisoles

The Rio Grande bottom widens about Los Lunas, and remains broad until it approaches the mouth of the eastern Rio Puerco. The muddy waters of this stream reach the river only during heavy storms, when it suddenly becomes a dangerous torrent. The settlement of La Joya has suffered repeatedly from such floods; but it has also suffered from drought, since in rainless years even the Rio Grande dries completely between Sabinal and the mouth of the Rio Puerco. Regular water supply for purposes of irrigation cannot be relied upon much farther south than Belen, twelve miles south of Los Lunas. In former times, when the State of Colorado was still a wilderness, the river "sank" occasionally at Mesilla, below the Jornada del Muerto. The Piros villages, however, were not exposed to this danger. On the contrary, everything points to the fact that the Indians were afraid of floods, and most of the ruins are situated on ground much higher than that occupied by modern settlements. Tomé stands on the site of a former pueblo, as the results of excavations have proved; and at the Casa Colorada, also on the east side of the river six miles south of Belen, stands the Pueblo del Alto, which, as its name implies, is situated above the reach of inundations. At the Sabinal there is at

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y calabazas. . . . Y desde allí caminamos cincuenta leguas el rio arriba donde en él y á los lados, como á una jornada, descubrimos y bimos y passeamos sesenta y un pueblos, poblados todos de gente vestida, y los dichos pueblos, muy en buen lugar, llanos y en buena tierra." Espejo, *Relacion del Viage*, p. 112: "Y de todo esto hay sementeras de riego y de temporal con muy buenas sacas de agua y que lo labran como los Mexicanos." According to him, the Piros occupied ten villages along the river, but more were in sight: "En dos dias hayamos diez pueblos poblados, rivera de este rio, y de una y otra banda junto á él, de mas de otros pueblos que parecían desviados."

least one ruin.[1] There are indications that these villages may have belonged to the Piros tribe; still it is not certain, and the first ruin which can be identified as that of a Piros pueblo is the one near La Joya, or that of the old village of Sevilleta, a pueblo well known in history. Oñate arrived there about the middle of June, 1598, and found the village to be small. On account of its situation, he called it New Sevilla;[2] a name afterwards changed to Sevilleta.[3] Thence he proceeded sixteen miles north to the next village, which he reached on the 24th of June, and called it San Juan Baptista. The distance agrees with that between La Joya and Sabinal, so th[illegible] the ruin at the latter place can be considered as that of a pueblo still inhabited in 1598.[4]

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[1] I speak from information given to me by various persons.

[2] *Discurso de las Jornadas*, p. 251: "Andobimos tres leguas al puceblecillo que llamamos Nueua-Sevilla por su sitio."

[3] Vetancurt (*Crónica*, p. 310) explains the name of Sevilleta: "Por la multitud que se halló de Piros." I prefer to adopt the explanation given by Oñate.

[4] *Discurso*, p. 252. He says the village was "nuevo, y despoblado por nuestra ida." Villagran, *Historia*, fol. 136:—

"Y por ser otro dia aquella fiesta,
Del gran San Iuan Baptista, luego quisó,
El General que el campo se assentase,
En vn gracioso pueblo despoblado,
De gentes vezinos, y abundoso,
De muchos bastimentos que dexaron,
Aquí con gran recato preuenidos."

The Spaniards held a tournament in honor of the day, and while they were engaged in it there came three Indians, who, to the great surprise of the whites, pronounced the names of some of the days of the week in Spanish, and also mentioned the Spanish names of two Indians who had been baptized during one of the previous expeditions into New Mexico, and had remained in the country. Ibid., fol. 137:—

"Y estando junto del, algo risueño,
El vno dellos, dixo en altas vozes,
Iueues, y Viernes, Sabado, y Domingo.
. . . . .
El mismo Baruaro algo temeroso,
Dixo Thomas, Christoual, señalando,
Que los dos destos nombres, dos jornadas,
Estauan de nosotros, bien cumplidas."

These two Indians were afterwards met at Santo Domingo, where they had

Sevilleta was subsequently depopulated and destroyed by fire, in consequence of intertribal wars;[1] but I am unable to say whether these hostilities were between Pueblo tribes or with nomadic Indians. In 1626, it was resettled, and a church built, dedicated to San Luis Obispo. It became the seat of a mission, which embraced several other Piros villages; being then the most northerly pueblo of that tribe.[2] This would lead to the inference that the pueblo at the Sabinal was either Tigua, or else abandoned between 1598 and 1626. In 1680, Sevilleta was reduced to a mere hamlet, its inhabitants fled with the Spaniards to El Paso del Norte, and the place was never resettled.[3]

Oñate makes no mention of the Piros village of Alamillo, situated a few miles south of La Joya, on a bluff not far from the banks of the Rio Grande. That bluff overlooks a pleasant bottom dotted by cottonwood trees, from which the place derives its name. Until the uprising of 1680, Alamillo had a church dedicated to Saint Anne, and its population in that year amounted to three hundred.[4] It is known that the Piros did not participate in the general uprising of the Pueblos.[5] The Spanish fugitives from the Upper Rio Grande valley, forced to leave Isleta, therefore retreated as far as

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been left by Castaño in 1591, and they became the interpreters of Oñate. *Discurso*, p. 254. Villagran, *Historia*, fol. 139.

[1] Benavidos, *Memorial*, p. 16. "Estaua desipoblada por guerras con otras naciones que le quemaron."

[2] Ibid.: "Otro en el de Sevilleta, dedicado á San Luis Obispo, de mi religion."

[3] Vetancurt, *Crónica*, p. 310: "Y le habitan tres familias, hoy está asolado." Alonzo Garcia, *Autos presentados en Disculpa* (in *Diario de la Retirada*, fol. 45): "Y habiendome llegado al Pueblo de Sevilleta donde hallé á los naturales de dicho pueblo quietos y pacificos al parecer, pues dejaron su pueblo, y me fueron siguiendo hasta el del Socorro, que unos, y otros son de nacion Piros."

[4] Vetancurt, *Crónica*, p. 310.

[5] They had not been invited to join by the other pueblos. *Interrogatorios de varios Indios*, 1681, fol. 125: "Que [Pope] cogio un mecate de palmilla, y mar

Socorro at first, passing through Alamillo. Notwithstanding the friendly attitude of the Piros, the frightened colonists did not consider themselves safe until they were beyond the reach of the Pueblos, and so they hurried on to the Jornada del Muerto, where they established a camp, while Lieutenant General Alonzo Garcia with a few men returned to meet his superior, of whose escape from Santa Fé and retreat down the Rio Grande valley he had been informed. At Alamillo he met the Governor, and, one league south of that place, about thirty soldiers commanded by the Maestro de Campo Pedro de Leyba also reinforced the slender forces of Otermin. It seems that at least a portion of the Indians of Alamillo joined the Spaniards on their retreat.[1] In the following year, however, the remaining inhabitants of the pueblo fled upon the approach of Otermin; whereupon the pueblo was set on fire, and destroyed.[2]

Passing by Limitar, where I was told there is a ruined pueblo, I now reach the vicinity of Socorro. There I investigated some of the numerous ruined pueblos on both sides of the river, and the vestiges of small houses scattered over the hills opposite the town of Socorro.

Between Alamillo and Socorro the Rio Grande flows through a defile, shut in by picturesque mountains on the west.[3] At Socorro, or rather at the Escondida, three miles north of it, the country opens again, and the peaks of

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rando en el unos nudos, que significaban los dias que faltaban, para la egecucion de la traicion, lo despacho por todos los pueblos hasta el de la Isleta sin que quedase en todo [illegible] reyno, mas que el de la nacion de los Piros."

[1] *Autos y Dilijencias hechas por dhos de algunas Personas: de Orden del Gobernador Don Antonio de Otermin*, 1681, MS. Testimony of the Maestro de Campo Francisco Gomez: "Saliendose todos con la fuersa que tenían siendo la mor candidad y mejores soldados del rno, lleuandose consigo la jente del puo de la Yslets, Seuilleta y Alamillo, dexando los puros desiertos y despoblados."

[2] Vetancurt, *Crónica*, p. 310.

[3] There are, however, openings of fertile and well cultivated soil along the pass, like Limitar, on the west side.

Socorro, steep and imposing, stand out above the plain on which the town is built. The Sierra del Socorro is only three miles from the river, but its summit rises 2,700 feet above it, and this difference of level, coupled with the abruptness of the mountain slopes rising in several high terraces, contributes to render the scenery interesting; while the east side shows only sandy and gravelly hills of dull monotony. Mezquite (*Prosopis juliflora*) and cacti characterize the dusty and scanty vegetation. The river flows between dense thickets of willows and cottonwoods; but this fringe is narrow, and the little plain of Socorro, sloping gently down from the base of the mountains, imparts to the landscape an apparent air of bleakness. The mines of Socorro were noticed early in the seventeenth century, but not worked to any extent.[1] On the site of the town, which was founded in the beginning of this century, stood the Piros village of Pil-o Pué, or Pil-abó; but no traces of it are visible, the spot having been built over. Still metates and pottery are occasionally exhumed. It was a considerable mission, founded in 1626, and had a church and convent, dedicated to the Virgin of Relief.[2] The abandonment of the pueblo dates from 1680 and 1681, most of its inhabitants following the Spaniards to El Paso del Norte.[3] In 1692 the church was still standing, except the roof, which had been consumed by fire.[1] In 1725 the ruins of the pueblo could be plainly seen from the hills on the east side of the river.[2]

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[1] Zárate-Salmeron, *Relaciones*, par. 34: "Hay minas en el Socorro." Benavides, *Memorial*, p. 53: "El cerro del pueblo del Socorro, principal y cabeça desta prouincia de los Piros, que todo el es de minerales muy prosperos. Que corren de Norte á Sur mas de cincuenta leguas; y por falta de quien lo entienda, y gaste en su benefizio, no se goza de las mayores riquezas del mundo, y V. N. pierde sus quintas reales." This was in 1630.

[2] Benavides, p. 16: "El otro en el pueblo Pilabo, á la Virgen del Socorro." This dedicarion to the "Virgen del Socorro" was made in memory of Oñate, who in 1598 found stores of maize in the pueblo of Teypama, or Teypana, which stood opposite Socorro, on the east bank. *Discurso*, p. 251: "Dormimos frontero de Teipama, pueblo que llamamos del Socorro porque nos dió mucho maize."

[3] Vetancurt, *Crónica*, p. 310. He credits the pueblo with six hundred in-

That Pilabó existed in 1598 is certain.[3] Opposite, on the left bank, there then stood another village, called Tey-pam-á.[4] Possibly, even probably, it is the ruin of a many-storied pueblo four miles west of Socorro, in the Cañada de las Tinajitas, where there is said to be still another old village. I was further informed of at least one ruin in the Cañada de la Parida, northwest of Socorro, and of traces of small houses scattered along the hills.

The ruins which I have examined near Socorro are: —

1. The pueblo at El Barro, three miles north of the town.
2. The ruins at the Socorro hot springs, three miles west.

Both of these places lie on the west side of the Rio Grande.

On the east side: —

3. The pueblo at the rancho of Juan Domingo Silva, at the mouth of the Cañada de la Parida; not to be confounded with the Parida proper.
4. The small-house ruins opposite Socorro, and as far north as the previous site.

1. The ruins at El Barro are represented on Plate I. Figure 26. The pueblo was a small one, and its walls were of stones or rubble. Only one circular estufa accompanied the buildings, and its diameter is 8.8 meters (25½ feet). The four

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habitants. That they followed Otermin to El Paso in 1680 is stated in *Diario de la Retirada*, fol. 45.

[1] Escalante, *Relacion*, p. 137.

[2] Rivera, *Diario y Derrotero*, p. 28.

[3] It is mentioned under the name of Pilopué in the *Obediencia de San Juan Baptista*, p. 115, as lying on the west bank of the Rio Grande.

[4] Teypama is also located on the west bank in the *Obediencia*. But in the *Discurso de las Jornadas*, p. 254, it appears on the east side, which is correct since Oñate marched up on that bank.

houses of which the rooms were exposed showed on the ground plan fifty-nine cells, measuring on an average 2.6 by 1.9 meters (8½ by 6¼ feet), — a remarkably small size. The largest rooms measure 3.3 by 2.2 meters (10¾ by 7¼ feet). The site is well selected for defence, being a bare promontory, the base of which is separated from the river only by the width of the railroad track and of an irrigating ditch. The pottery at this ruin is the same as at the Tigua ruins at Bernalillo, — plain, and with coarsely glazed ornamentation.

2. The ruins at the hot springs of Socorro are almost obliterated. They stand on two bare knolls, separated from each other by a gulch, and their surface is covered with flint chips of various hues and some obsidian. I also found a few plain red and black potsherds, but no decorated ware. With the exception of two places, there was nothing left but low mounds much worn by time and abrasion.

3. Opposite the promontory of El Barro, in the fertile bottom at the mouth of the Arroyo de la Parida, lies the ruin shown on Plate I. Figure 27, and which I have located "at the house of Juan Domingo Sylva." This Mexican adobe dwelling has been erected in the courtyard of the largest building of the former pueblo. The village consisted of at least three edifices: the main quadrangle, another one distant from it 25.7 meters (84 feet), and a low mound 75 meters (246 feet) to the north of the principal building. This measures 51.5 meters (170 feet) from east to west, and 69.4 (227 feet) from north to south. The only entrance to the interior square was on the east, through a narrow passage not more than 1½ metres (5 feet) wide. The surface of this square has been so disturbed by modern constructions that it is impossible to determine whether it contained any estufas. The hollow quadrangle to the west measures 31 by 36 meters

(102 by 118 feet), and the northern mound 47 by 11 meters (153 by 36 feet). There is no doubt that the main building was at least two, perhaps three, stories high, for longitudinal partition walls are still traceable on the surface that show six rows of cells; the transverse partitions are obliterated.

This pueblo was built of adobe, and the pottery fragments were of the same description as those at Bernalillo and at the historic Tanos ruins, with glazed decorations; but there were also a number of plain black and plain red potsherds. Mr. Sylva informed me that at the foot of the range of bluffs which overlook his home he found a burial place. There were a number of bodies having the head to the south and the feet towards the north; but there were no traces of stone graves. This cemetery may have been that of the "Pueblito" at his house, or it may have belonged to another quite different ruin, of which I shall now speak in connection with specimens of ancient small-house architecture about Socorro.

4. During my ineffectual search for the Cañada de las Tinajitas, I came upon at least five ruins of small isolated buildings on the sandy heights above the east bank of the Rio Grande. One of them was 6 meters (19 feet) square, another measured 4.4 by 6 meters (14 by 19 feet). These buildings had stone foundations, but I am in doubt as to the material of the superstructure. Very little pottery accompanied these ruins, and what there was of it was of the ancient black and white, and of the corrugated varieties. No trace appeared of potsherds with glazed ornamentation. The corrugated specimens were made of a dark red micaceous clay, which is found in the bluffs about the mouth of the Parida.

While I was at the house of Mr. Sylva, he called my attention to a ruin on the ridge or bluffs not over half a mile east of his home. This ridge is about 20 meters (65 feet) high, and although the base of it and the river bottom are of red clay, the brow is gray and sandy. Scrubby mezquite dots both summit and slope, but along the river the growth is more vigorous. I soon found the locality; but instead of large houses of the communal or Pueblo type, I was surprised to see a complete village of small buildings, irregularly scattered on the brow of the height, at intervals of from a few to over seventy meters. See Plate I. Figure 28. I counted not less than fourteen little mounds, or flat knolls, varying in size from 3 meters to 19 in length, and mostly oblong (10 to 62 feet). In one of these mounds charred corn had been dug up, and was lying about.[1] What, however, more attracted my attention was the character of the potsherds: not a single glazed specimen could I detect, but gray pottery, decorated with fine black lines, corrugated, indented, — in short, those types of Southwestern earthenware which Mr. Holmes recognizes as being the most ancient, — lay around in profusion. The contrast in architecture and in pottery between this ruin and the one below was so striking, that I could not resist the inference that they represented two distinct settlements. I concluded that I had before me the dwellings of a people, whose culture was probably on the same general plane as the historic Pueblos, but who had either disappeared from New Mexico previous to the Spanish occupation, or had changed the architecture for reasons of which we know nothing.[2] To which of the two types the burials before spoken of belonged, I am utterly unable to surmise.

I afterwards ascertained that small houses occur quite numerously along the eastern bluffs of the Rio Grande, lower down than Socorro. I desire to call the attention of future investigators to one point: previous to the insurrection of the Pueblos, Spanish farm-houses, haciendas, and what may be called cattle ranches, existed at various places along the Rio Grande from above Socorro to about nine miles below, where the hacienda of Luis Lopez probably indicated the most southerly Spanish dwelling in New Mexico.[1] The houses of such establishments were like the adobe buildings on isolated ranches of this day, and the mounds formed by them through decay in course of time would be quite similar in size and appearance to those of ancient Indian small-house abodes. The investigator should also bear in mind that in many small-house ruins pottery is rare on the surface; so he is exposed to the double danger of regarding as very ancient what is in fact modern, or of disregarding as modern what really belongs to the most ancient type of aboriginal architecture in the Southwest.

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[1] The ears of this corn, of which I sent some specimens to the Peabody Museum at Cambridge, were of the small variety.

[2] I will call attention to the remarkable article of Mr. F. H. Cushing on *Pueblo Pottery, as illustrative of Zuñi Culture Growth*, in the Fourth Annual Report of the Bureau of Ethnology, 1886.

The country west of the Socorro Mountains is unknown to me from personal inspection, but I have been told that there are no ruins in that direction nearer than thirty miles. In the mining district of the Sierra de la Madalena ruins of pueblos exist to which I shall refer in a later chapter.

In an easterly direction it is thirty-three miles from Socorro to San Marcial, where the Atchison, Topeka, and Santa Fé Railroad crosses the Rio Grande, and begins to ascend the dismal northern slope of the Jornada del Muerto. Between the two places the Rio Grande valley presents a monotonous appearance; low gravelly hills skirt the bottom on both sides; vegetation is scrubby, except an occasional grove of cottonwood; the soil, however, is fertile wherever it is not covered by drift. Since the opening of large irrigating canals in Southern Colorado, this region has suffered considerably from lack of water in the months when irrigation is most needed. Even before this condition of affairs, complaints about drought are not uncommon in older documents. Dry years seem to recur in New Mexico with a regularity that perhaps indicates a decennial period. So long as the natives raised only corn, beans, and squashes, the Rio Grande always afforded a moderate supply of water. Their pueblos, small as they seem to have been, extended as far south as the vicinity of San Marcial, or of Fort Craig, some fourteen miles farther south. I have not examined any except at San Marcial. The most important of them during Spanish times stood near the present station of San Antonio, thirteen miles south of Socorro. Its ruins lie on an eminence west of the little village, and its situation is well described by Vetancurt as "on a height of gravelly cliffs."[1]

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[1] I infer this from Vargas, *Autos de Guerra*, 1693, fol. 16: "En quarto dias del mes de Nobiembre, etc. Yo dho Bouor llegué con dho campo á esta hazienda despoblada y cayda que dizen fué de Luis Lopez, que se alla doze leguas del puesto dho de Fray Christóbal y tres antes de llegar al pueblo del Socorro." No previous mention is made of ruins of Spanish houses along the Rio Grande. Rivera, *Diario y Derrotero*, p. 28, mentions the first remains of Spanish houses as near Socorro, on the east bank of the Rio Grande, during a journey of twelve leagues as far as Alamillo. "Y á la del leste, se encontraron varias ruynas, donde huvo haziendas de labor antes de la sublevacion." Twelve leagues, or thirty-five miles, south of Alamillo would locate the place from which he started on this journey at Valverde, twenty miles south of Socorro, and the ruins of Spanish houses appeared farther up, in the vicinity of Socorro.

The name of this pueblo was Senecú, or Zen-ecú, and its past history, from the time of Oñate on, is better known perhaps than that of any other of the Rio Grande villages. The organization of the Piros into missions began in 1626, and the most southerly church and convent of New Mexico were constructed there in that year. Saint Anthony of Padua was made the patron of the place.[2] The founders of the mission of Senecú appear to have been Fray Antonio de Arteaga, a Capuchin monk, and Fray Garcia de Zuñiga, alias "de San Francisco." To these two friars the planting of the first vines in New Mexico is probably due, and the manufacture of wine. The last named priest is also credited with having placed an organ in the church of San Antonio[1]

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[1] *Crónica*, p. 309: "En una montaña de escollos pedregosos."

[2] So it is claimed by Benavides, *Memorial*, p. 16. Vetancurt (*Crónica*, p. 309)

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places it in 1630. I follow Benavides, who was an eyewitness of the events in New Mexico. He left that territory for Mexico in 1628, and San Antonio must have already been in existence as a mission. The date of his departure is given by himself as 1631, in *Carta que embió á los religiosos de la Santa Custodia de la Conversion de San Pablo*, in the *Relacion histórica de la vida y apostólicas tareas del Venerable Padre Fray Junipero Serra*, by Fray Francisco Palou, p. 331. The name was probably Tzen-o-cué, whence "Senecú" or "Zenecú."

[1] Benavides does not mention either of these monks, but attributes the establishment of the missions to himself, which is true in the sense that he, as Custodian, directed them. Vetancurt (*Crónica*, p. 309): "El año de 630, fué hecha la conversion de los Indios de Senecú por el Reverendo Padre Fray Antonio de Arteaga, Provincial que fué de la Provincia Santa de los Descalzos de San Diego, y un templo y convento á San Antonio de Padua dedicado. Dejó allí á su compañero el venerable Padre Fray Garcia de Zuñiga, alias de San Francisco, que lo adornó de organo," etc. The same author (in *Menologio Franciscano*, p. 24) says that the two monks came to New Mexico in 1628. Fray Garcia de San Francisco died at Senecú, and was buried there, on January 22, 1673. From Senecú, Fray Garcia founded the mission of El Paso del Norte in 1659. *Auto de Fundacion de la Mision de Nuestra Señora de Guadalupe de los Mansos del Paso del Norte*, MS., December 8, 1659. The last entry in the handwriting of this missionary bears date January 15, 1671, and is found in the *Libro primero de Casamientos de la Mision de Nuestra Señora de Guadalupe del Paso del Rio del Norte*, MS., fol. 13. According to Fray Balthasar de Medina, *Chronica de la Santa Provincia de San Diego de México, de Religiosos des Calços de N. S. P. S. Francisco de la Nueva España*, 1682 (lib. iv. cap. vii. fol. 168 *et seq.*), Fray Antonio de Arteaga and Fray Garcia de San Francisco converted the Piros between the years 1650 and 1660. This manifestly relates to the conversion of the Mansos only. In regard to the introduction of the grape into New Mexico, the statements of Vetancurt (*Crónica*, p. 309) appear plausible: "Y una huerta, donde cogió uvas de sus viñas y hacía vino que repartía á los demas conventos." See also Medina, *Chronica*, fol. 169. Villagran (*Historia*, fol. 140), speaking of the domestic plants cultivated since the arrival of the Spaniards, does not mention grapes, although he enumerates wild grapes among the native plants of the province: "Y vbas en cantidad por los desiertos." Zárate, *Relaciones de todas las cosas*, is silent on the matter of grapes.

This mission gradually attracted the inhabitants of the smaller pueblos, and induced them to congregate around its place of worship. In 1630 the Piros still held fourteen villages, with an average population each of four hundred souls.[1] Fifty years later they were reduced to four. This was due not only to the efforts of the missionaries to gather their flock into larger pueblos, but also to the danger to which these Indians were exposed from the Apaches of the "Perrillo" and the "Xila,"[2] as the southern bands of that restless tribe were called. They harassed the Piros as much as the Navajos did the Jemez. All efforts at taming them utterly failed; for, although willing to make peace with the Spaniards, they persisted in preying upon the pueblos, which the Spaniards were bound to protect.[3] This hostile relation between them and the Piros and their Spanish protectors continued for more than forty years; yet this did not hinder some malcontents among the Piros from entering into occasional conspiracies with their hereditary enemies against the Spanish power. During the government of Don Fernando de Villanueva, some Piros of Senecú killed the Alcalde Mayor of the jurisdiction of Socorro and four Spaniards in the Madalena Mountains. This massacre was originally attributed to Apaches; but the participation of the Piros being detected, six of them were executed for the crime.[1] With the usual fickleness of the Indian, the Apaches subsequently turned against their former allies, and on the 23d of January, 1675, surprised the pueblo of Senecú, killed its missionary, Fray Alonzo Gil de Avila, and slaughtered so many of the inhabitants of all ages and both sexes that the survivors fled in dismay to Socorro, and the pueblo remained forever deserted.[2]

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[1] Benavides (*Memorial*, p. 83) estimates the population at 6,000 souls, which gives about 400 for each one.

[2] These names were current in 1630. Benavides, *Memorial*, pp. 13 and 54 *et seq.*

[3] Ibid., p. 52: "Es nacion tan bellicosa toda ella, que ha sido el crisol del esfuerço de los Españoles, y por esto los estiman mucho, y dizen, que solo los Españoles merecen el titulo de gente, y no las naciones de los Indos poblados." Speaking of the Navajos he adds: "Porque algunas vezes, que allí han ido á pelear los Españoles, en castigo de los muchos Indios Christianos que matan." He attempted the conversion of the Apaches from Senecú (page 54), going to the Gila Apaches, fourteen leagues from that pueblo, but his endeavors proved fruitless in the end.

On the east bank of the river, in front of San Antonio, will be found the ruins of the former Piros pueblo of San Pascual. This village was already deserted in 1680, and probably was abandoned previous to Senecú.[3]

Whether there are any ruins between San Antonio and

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[1] *Ynterrogatorio de Preguntas*, MS., testimony of Juan Dominguez de Mendoza: "Y en particular en tiempo del Sr. General D. Fernando Villanueva en la Provincia de los Pyros por traidores y echizeros ahorcaron, y quemaron en el pueblo de Séne." Testimony of Diego Lopez Zambrano: "Y despues acá se hizo otro castigo con los Pyros, por el mismo delito, gobernando el Señor General D. Fernando Villanueva, que se ahorcaron seis Yndios y otros fueron vendidos, y depositados, porque á mas de sus delitos y conjuraciones, se hallaron en una emboscada con los enemigos Apaches en la Sierra de la Magdalena, donde mataron cinco Españoles, y entre ellos al Alcalde Mayor, el cual lo mató uno de los seis Yndios Christianos que se ahorcaron llamado en su lengua el Tambulista."

[2] The oldest mention of this massacre at my command is found in the *Parecer del Fiscal*, dated September 5, 1676 (MS.): "Pasaron á dar muerte . . . y al Pe Fr. Alonzo Gil de Avila, Ministro del pueblo de Zennecú en el dia 23 de Enero del año passado de 675." Fray Juan Alvarez, *Peticion al Gobernador Don Francisco Cuervo y Valdés*, 1705 (MS.): "Tambien el pueblo de Senecú. mattaron al Pe Pr. Fr. Alonso Gil de Auila y destruieron lo mas de la gente indiana." Vetancurt only says (p. 309): "Hoy está el pueblo despoblado y arruinado en la tierra de los enemigos."

[3] San Pascual is frequently mentioned in documents between 1680 and 1690. Indians from this pueblo were living at El Paso del Norte. Its site is indicated by Rivera, *Diario y Derrotero*, p. 27: "El dia veinte y ocho . . . caminé ocho leguas, siguiendo la rivera de el rio, y haziendo noche en vn despoblado, como los antecedentes, que llaman de S. Pascual, tomando la denominacion de las ruvnas de vn pueblo situado á la vanda de el leste de el rio, que lo fué antes de la Sublevacion General. Y desde este mismo parage se miran los uestigios de otro, que se nombraba Senecú, situado á la vanda de el Veste de el rio." San Pascual lay thirty-three miles south of Alamillo.

San Marcial I am unable to say. At San Marcial, however, on the site owned in 1882 by Estéban Gonzalez, I found vestiges of a former pueblo, in the shape of rubble foundations marking the end of a large rectangular building, and a low oblong mound. The pottery was red, and black, with faint traces of coarsely glazed decorative lines; but these vestiges have now doubtless disappeared. San Marcial lies in a fertile valley, and from it the view of the distant mountains, especially at sunrise, is quite striking. The lofty Madalena, the dark San Matéo, and in the far southwest the Mimbres, loom up with picturesque profiles. To the east the view is not attractive, as a black mesa of volcanic rock facing San Marcial, past which the Rio Grande ordinarily rushes with considerable velocity, is the last spur of the Jornada del Muerto, and from its top the eye surveys a dreary plain extending southward indefinitely. Pale mountains skirt the eastern horizon, and above them rise the peaks and crests of the Sierra Blanca in solemn grandeur. The pine-clad slopes of that mountain chain are almost the only tokens of vegetable life descried from the top of the mesa of San Marcial in the directions east and south.

This Black Mesa was a landmark even in the days of Juan de Oñate, and is spoken of as the "Mesilla of Guinéa," or the black rock.[1] Near its foot stood the most southerly pueblos of New Mexico in the sixteenth century. Trenaquel of the Mesilla was the last Piros village on the west bank of the Rio Grande, Qual-a-cú the last on the east; consequently they were the first ones met with on that river when coming from Chihuahua.[2] The region of San Marcial not only indicates the southern limit of the Pueblos in the sixteenth century, but it seems also that the many-storied Pueblo type of architecture at no time extended farther down the Rio Grande valley. I have diligently inquired, and have always been told that the ruins along the little streams running into the river from the west, the Cañada Alamosa, the Palomas, and others, are of a different type. The latitude of San Marcial therefore indicates the southern geographical limit of the Pueblo tribes, as well as of specific Pueblo architecture in New Mexico.[1]

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[1] *Discurso de las Jornadas*, p. 249: "A veinte y siete, andobimos siete leguas hasta la Cienega de la mesilla de Guinéa, por ser de piedra negra."

[2] *Obediencia de San Juan Baptista*, p. 115: "Y ultimamente Trenaquel de la Mesilla que es la primera poblacion de este reyno, hacia la parte del Sur y

The Piros, in times anterior to the Spanish discovery, had extended their settlements to the east of the Rio Grande valley, beyond the cordillera which begins with the Sierra de Sandia in the north, and terminates in the south at El Paso del Norte. Around the salt lake basin of the Manzano they had become the neighbors of the Tiguas. I must

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Nueva España." This would lead to the inference that the ruins on the site of San Marcial are those of Trenaquel. Qualacú is mentioned in the same document as situated on the east bank. In *Discurso* (p. 250) it is stated still more explicitly: "Y dormimos frontero del segundo pueblo llamado Qualacú, hácia la banda del rio por donde nosotros ibamos."

[1] This is the conclusion to be drawn from the reports of all Spanish expeditions to New Mexico between 1580 and 1600. Whoever follows attentively the itineraries of Chamuscado, Espejo, and Oñate will find that the vicinity of San Marcial was the spot in the valley of the Rio Grande where the first pueblos were seen. The pueblo which Chamuscado and his men named Sant Felipe was probably Qualacú. Very conclusive testimony is also furnished by Benavides, *Memorial*, p. 14. The first Apaches were found at the Perrillo, and thence on began the Jornada del Muerto, at the northern end of which "hasta llegar á encontrar otra vez con el Rio del Norte, á orillas del cual comiençan las poblaciones del Nueuo México. . . . Llegado á este rio por esta parte, comiençan las primeras poblaciones, por la provincia y nacion Piros."

There may possibly be some pueblo ruin a few miles south of San Marcial, near Fort Craig; I have not examined the locality. West of it all the ruins belong to the peculiar small-house type connected with courtyards and garden plots, which is characteristic of the Salado and Gila in Eastern Arizona. Farther south in the Rio Grande valley the small-house variety alone is found, as far as El Paso del Norte.

therefore turn to that region and to its ruins, several of which are among the most picturesque in New Mexico.

THE SALT LAGUNES OF THE MANZANO, AND THE MESA DE LOS JUMANOS.

A. *The Tiguas from Chilili to Cuaray.*

At the close of Chapter II., I stated that the Tanos had penetrated as far south as the valley of San Pedro, and had thus become the northern neighbors of the Tiguas of the "Salines." The "Sierra de Gallego," also called "Sierra de Carnué," divides San Pedro from Chilili. The Carnué range is not very high, and pine forests cover its slopes, reaching to the crests and summits. In ancient times these pine-clad heights must have been solitudes, as they are to-day. The old grant of Carnué mentions a ruin in the mountains, west of the Spanish settlement, that was founded and soon abandoned towards the end of the past century.[1] While descending from the crest of Carnué, the traveller obtains an occasional glimpse of the region to the east and south, a vast expanse of singular bleakness.

Desolate plains spread to the east; dismal hills border them along the horizon; only two or three springs rise to the surface between Galisteo and the salt marshes. One of these bears the name of "Ojo del Cibolo."[2] This seems to imply that the buffalo once ranged as far as the base of the San Francisco and San Pedro Mountains. The southeast presents the appearance of a yellowish basin, the saline deposits of the Manzano, — a series of lagunes whose waters are charged with salt, or the dry deposits of such pools. This region is at least thirty miles from north to south, and irregularly oblong. Beyond it rise the low cones of the Pedernal range.[1] South of the salt lakes the dark front of a vast mesa skirts the depression in which they lie, covered with forests on its brow and northern slopes. It is the Mesa de los Jumanos, behind which high mountain chains loom up, the Sierra de la Gallina in the southeast, and farther south the Sierra Capitana[2] and the Sierra del Carrizo. From the higher ridges of Carnué a lofty chain can be seen in the distant south, the Sierra Blanca, the culminating elevation between Santa Fé and the boundary line of Texas.[3]

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[1] The grant of Carnué was made by Governor Tomas Velez Cachupin in 1763. *Real Posecion de San Miguel de Laredo*, MS. In 1771 the settlers petitioned for leave to abandon the place, which had become untenable on account of the Apaches. *Representacion de los Vecinos de San Miguel de Carnué para despoblar y Diligencias sobre esto*, MS. In the first of these documents occurs the following passage: "Que es para el Oriente vn pueblo antiguo al sentro de la cierra." In *Merced á Juan Ignacio Tafoya*, (1819, MS.,) that ruin is called "las ruinas antiguas del pueblo que llaman de S. Antonio." I find no other trace of such a pueblo; it must have been occupied within historic times.

[2] "Buffalo Springs," fifty-seven miles south of Galisteo. The other springs

The basin of the salt lakes is bordered on the west by hills and valleys rising to the densely wooded eastern slopes of the Sierra del Manzano. The lowest spurs of the chain, as far as the northern base of the Jumanos Mesa, were the country of the Eastern Tiguas. It is a narrow strip with a few unimportant watercourses.[4] The heart of the mountains appears to be without vestiges of human occupation, as are the salt lakes proper and the plains north of them as far as the Galisteo basin. I have heard ruins spoken of between the Pedernal and the Pecos River, and of ruins of pueblos

are "Ojo del Verrendo" (Antelope Springs), 41 miles, and "Ojo Hediondo" (Stinking Spring), 27½ miles south of Galisteo. There are scattered woods about the Ojo del Cibolo.

[1] The height of the Pedernal is 7,580 feet.

[2] The Sierra de la Gallina is 9,798 feet high; the S. Capitana 10,023; and the S. del Carrizo 9,360.

[3] The Sierra Blanca is about 12,000 feet high.

[4] Like the arroyos of Chililli and Tajique. None of these watercourses reach the basin of the salt lakes; they sink some distance to the west of it.

in the Capitana and the Gallina. The Tiguas tell fairy and goblin tales about an ancient pueblo called "Car-far-ay," which they place in the distant east, somewhere beyond the Salines of the Manzano.[1]

The little village of Chilili lies in a nook on the slope, well sheltered to the north and west, but open to the east; and a permanent streamlet, the Arroyo de Chilili, runs through it. The former Tigua pueblo of Chilili stood on the west side of the creek, but its site is now built over, and only a few traces of the small chapel are visible. That chapel, dedicated to the Nativity of the Virgin,[2] stood on the east bank. The inhabitants of Chilili say that metates and arrow-heads are still occasionally found. I noticed some black and red potsherds, and later I saw a handsomely decorated water-urn, well preserved and ornamented with symbols of the rain, the tadpole, and of fish, painted black on cream-colored ground, which had been exhumed at Chilili. It is in possession of the Hon. R. E. Twitchell of Santa Fé.

The brook running through Chilili extends only about a mile beyond that hamlet; farther down it sinks, like all the watercourses that descend from the Manzano chain towards the Salines. These constantly fill up their own beds with drift and sand, and thus, in course of time, gradually recede. Years ago, so old residents affirm, this brook had permanent water for one mile and a half farther east. It is well to note such local peculiarities, for they tend to explain changes of locality of Indian villages in former times. The settlement of modern Chilili dates from 1841; that is, a grant was issued in that year for lands on that site.[3] But the first houses were built some distance lower down the arroyo than the present village. Subsequently they had to be abandoned on account of the filling up of the bed of the stream with solid matter.

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[1] I owe the information about this mythical village to Mr. C. F. Lummis.

[2] Vetancurt, *Crónica*, p. 324: "El templo era á la Navidad de Nuestra Señora dedicado. Es el primer pueblo del valle de las Salinas."

[3] *Merced á Santiago Padilla, etc.*, March 29, 1841, MS.

Chilili was an inhabited pueblo until about 1670. It appears first in 1630;[1] but there are indications, amounting almost to positive evidence, that it existed in the sixteenth century.[2] The conversion of the people to Christianity and the building of the chapel are attributed to Fray Alonzo Peinado, who became Custodian of New Mexico in 1608.[3] This would assign a very ancient date to the establishment of the church at Chilili. In 1680 it is said to have contained five hundred Tigua Indians.[4] Whether it was the seat of a mission or only a "visita," I am unable to say.

The persistent hostilities of the Apaches caused the abandonment of Chilili, and of all the pueblos about the Salines, previous to the uprising of 1680.[5] The exact date of their evacuation is unknown to me; but it certainly took place previous to 1676 and after 1669.[1] The inhabitants retired mostly to the Rio Grande Tiguas; but some joined the Mansos at El Paso del Norte.

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[1] Benavides, *Memorial*, p. 23: "Dexando el Rio del Norte, ya partandose de la nacion antecedente azia el Oriente diez leguas, comiença la nacion Tompira por su primer pueblo de Chilili." The name of "Tompiros," as I shall prove further on, is a misnomer when applied to the Tigua Pueblos of the Salines.

[2] *Obediencia y Vasallaje á su Magestad por los Indios del Pueblo de Acolocú*, (Doc. de Indias, vol. G, p. 118). This document bears date October 12, 1598. It mentions four villages, "Paáco, Cuzaya, Junétre, and Acolocú." In Chapter II., I have identified the first one with the Tanos pueblo at San Pedro; Chilili is mentioned as "captain of Acolocú." The "province" is called "Cheálo." If Chilili existed in 1630, it is quite likely that it was in existence forty years previous.

[3] Vetancurt, *Crónica*, p. 324: "Tenía la nacion Piros mas de quinientos Cristianos que convirtió el reverendo Padre Fray Álonso Peinado, cuyo cuerpo está allí enterado." Ibid., p. 300: "El año de 1608 . . . fué por custodio el Padre Fray Alonso Peinado, con religiosos, por cuenta de su majestad." Father Peinado was alive in 1617. *Autos de Proceso contra Juan de Escarranad*, 1617, MS.

[4] Vetancurt, *ut supra*.

[5] See the remarkable complaint of Fray Francisco de Ayeta, *Memorial en Novere del Golernador, Cabildo Justicia y Regimiento de la Uilla de Santa Fé*, 1676 (MS.,) and the confession alluded to in the *Parecer del Fiscal* of September 5

The next ruin on the eastern slope of the Manzano range is at the village of Tajique, about fifteen miles south of Chilili. The road goes mostly through woods, with the dismal basin of the Salines in view to the east. I have diligently inquired for ruins both right and left of this route, but have invariably received the answer that only a few small mounds or knolls, indicating the former presence of "small houses," have been met with, and that there are no traces of regular pueblos.

The situation of Tajique is similar to that of Chilili, — a small valley open to the east and rising in the west. The ruins of the former pueblo border upon the present settlement on the north and west, lying on the south bank of the Arroyo of Tajique, which is here a permanent, though very modest stream. The houses of the pueblo were of broken

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of the same year. The Licentiate Don Martin de Solis Miranda says (MS.): "Por no pasar de cinco hombres Españoles los que hay en cada frontera, y ser solo diez los que han quedado en la cabecera, Villa de Santa Fé, estando muchos de los Españoles sin armas algunas, y casi todos sin caballos por haberselos llevado el enemigo."

[1] That it was prior to 1676 is proved by the *Parecer del Fiscal*: "Que á demas destruido totalmente poblaciones pasaron á poner fuego á las yglesias, llevandose los vasos sagrados," etc. After mentioning these depredations, he refers to the destruction of the village of Hauicu, near Zuñi, in 1672, and of Senecú, in 1675. Escalante, *Carta al Padre Morfi*, 1778, par. 2: "Destruyeron los enemigos Apaches con casi continuas invasiones siete pueblos de los cuarenta y seis dichos, uno en la provincia de Zuñi, que fué Jahuicu, y siete en el valle de las Salinas, que fuéron Chilili, Tan que y Cuarac de Indios Tihuas, Abó, Jumancas y Tabirá de Tompiros." That it occurred previous to 1669 is established by a letter of Fray Nicolas de Freytas, contained in the *Dilixencias sobre la solisitud del cuerpo del venerable Pe Fray Gerónimo de la Llana*, dated October 26, 1706, (MS.) from which it appears that in 1669 Father Freytas officially visited the pueblos at the Salines.

stones, but the chapel was built of adobe. The pottery is of the glazed variety; but I also found one fragment of the ancient black and white, or gray. In 1680 Tajique is credited with three hundred inhabitants, and the ruins do not point to any greater number.[1]

I doubt if the word Tajique belongs to the Tigua language; it strikes me as rather pertaining to the Tehua idiom, and to be a name given to the pueblo by its northern neighbors, the Tanos. Tûsh-yit-yay is claimed by the Isleta Tiguas, as Mr. Lummis informs me, to be the proper Tigua name for the place. It seems almost certain that the pueblo was in existence prior to the sixteenth century. Whether the word "Cu-za-ya," used in the "Act of Obedience and Vassalage" of the villages of the Salines, (October 12, 1598,) is a corruption of Tuh-yit-yay, I do not venture to determine.[2] Chamuscado caught a glimpse of the Salines in 1580, and says that there were around that basin eleven villages similar to those in the Rio Grande valley.[3] The year after, Espejo also possibly went to the Salines; but the text of his report is not clear enough to render it absolutely certain.[4]

Tajique was abandoned for the same reasons as Chilili and the other pueblos of the Salines. Possibly its evacuation took place previous to that of the most northerly Tigua village. The Indians from Cuaray, a Tigua pueblo situated about ten miles southeast, retired to Tajique, taking with them the corpse of the founder of their mission, Fray Gerónimo de la Llana, which they buried again in the church of that pueblo.[5] There is a statement to the effect that the last priest of Tajique escaped from the pueblo in company with two Spaniards, which would imply that the village was abandoned in consequence of a direct onslaught made upon it by the savages.[1]

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[1] Vetancurt, *Crónica*, p. 324: "Donde habia cerca de trescientas personas."

[2] *Obediencia del Pueblo del Acolocú*, p. 116. It may be a corruption of Cuaray, but I doubt it.

[3] *Testimonio dado en México*, p. 86.

[4] *Relacion del Viage*, p. 114.

[5] *Dilixencias sobre la solizitud del cuerpo del venerable Pe Fray Gerónimo de*

Ruins of "small houses" are said to be visible at Torreon,[2] and a few miles higher up; but the existence of large-house villages nearer than Manzano was positively denied.

The country between the Manzano and Tajique becomes more barren as the road approaches the edge of the salt basin. Manzano itself lies in a fine valley, fairly well watered, near the foot of a high range, which from there presents a picturesque appearance, with its densely pine-clad slopes. Like Tajique it is a modern settlement.[3]

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la Llana, 1759, MS., fol. 5: "El Yndio Tano de el Pueblo de Galisteo llamado el Ché tambien mui racional dixo: Que el sauía, y avía oydo varias vezes, que el Indio llamado Tempano mui viejo y que avía sido de aquellos pueblos arruinados, contaba que aquel pueblo llamado Quara se havía perdido primero. Y que los que quedaron de él se avían juntado con los Yndios de el immediato pueblo llamado Taxique, y que quando se perdió Quara sacaron de él un cuerpo de un religioso difunto, pero que no sabía donde lo avían puesto." From the investigation made at that time by direction of Governor Francisco Antonio Marin del Valle, it appears that the body of Fray Gerónimo de la Llana was found buried in the ruins of the church of Tajique, and not at Cuaray. The Indian Tempano here referred to was from the Salines, and well known in the beginning of the past century as a faithful and reliable man. His name appears in several documents of the time.

[1] Vetancurt, *Crónica*, p. 324: "Que administraba un religioso que escapó del rebellion con otros dos Españoles." If it is true that the priest escaped in the manner indicated, it was certainly at least four years prior to the rebellion, for Tajique was in ruins in 1680. Escalante, *Carta*, par. 2. Fray Juan Alvarez, *Memorial*. That the Apaches, and not the insurrection, caused the loss of the place, is beyond all doubt.

[2] Torreon is a small place situated between Tajique and Manzano, and about three miles from the former. Its grant dates from 1841. *Merced á Nerio A. Montoya*, MS.

[3] The Tajique grant dates from 1834. *Merced á Manuel Sanchez*, MS. The Manzano grant, *Merced á Jose M. Trujillo*, was issued in 1829, MS. The elevation of the village above sea level is given at 6,961 feet, or almost exactly that of Santa Fé.

During the whole of my stay at Manzano the weather was peculiarly unfavorable for archæological explorations, deep snow covering the ground, and one snow-storm following another. The few days of relatively calm weather I had to improve for the examination of more remote localities, like Abó and Tabirá. My information about ruins at Manzano is therefore from hearsay, and I cannot vouch for its absolute reliability. I was told that a pueblo existed on the hill, west of the place where a "Morada" of the so called Penitents stood in 1882.[1] Another pueblo is reported as having stood a few miles down the valley, at "Ojitos," and a third one opposite Ojitos, on the hills; small-house ruins were also mentioned. Of all these pueblos no trace appears in documents at my command; but it should be remembered that both Chamuscado, in 1580, and Benavides, in 1630, mention quite a number of occupied Indian villages about the Salines.[2] It is therefore unsafe to affirm that the Manzano ruins are prehistoric; they may antedate the sixteenth century, but they may be the remains of villages still occupied during the first century of Spanish domination.

There stands at Manzano a grove of tall apple trees, surrounded in 1882 by a wall of adobe. The trees are manifestly very old, and entirely neglected. It is probable that they were planted by some of the missionaries during the seventeenth century, which would give them quite a venerable age. There does not seem to have been a mission at Manzano, and I could not find out whether traces of an old chapel have been noticed; still the name of the place, "El Manzano," is derived from these apple trees. Consequently, they stood there when the settlement was made in the first quarter of the present century, unless, what is hardly probable, some of the settlers planted them before the municipal grant was issued in 1829. Probably the apple orchard of Manzano dates from prior to 1675. After that date, and until the foundation of the village of to-day, the Salines were a very dangerous region. An occasional hunter or large armed parties ventured into the valley, and beyond, at rare intervals; but nobody dared to establish himself permanently, for the Apaches held undisputed sway. I inquired diligently about the apple orchard, but not even the oldest inhabitants of Manzano, Torreon, or Abó were able to give me any other reply than that it was much older than the recollections of their fathers and grandfathers. Six miles east of Manzano stand the ruins of the mission of Cuar-ay, also called Cuarrá and Cuar-ac. It was a Tigua pueblo, and had a large church, dedicated to the Immaculate Conception.[1] The earliest mention of Cuaray in my possession dates from 1643, when Fray Juan de Salas was resident priest.[2] Among its missionaries, Fray Gerónimo de la Llana, 1659, whose remains lie buried within the walls of the old parish church of Santa Fé, is best known.[3]

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[1] The "Penitentes" are a branch of the "third order" of the Franciscans, but much degenerated. Their practices are partly secret, and for that reason they erect small buildings without windows, which they call "Moradas," or dwellings. The Church strongly disapproves of the ways of the Penitents, and they have repeatedly been excommunicated, and are now on the decline.

[2] Chamuscado, *Testimonio dado en México*, p. 86. Benavides, in *Memorial*, p. 23, says: "Quince pueblos en que auia mas de diez mil almas. Con seis conuentos y iglesias muy buenas." The six churches are easily found: Chilili, Tajique, Cuaray, Abó, Tenabó, and Tabirá.

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[1] Vetancurt, *Crónica*, p. 324: "La iglesia era de ricos altares y vasos de plata proveida."

[2] According to the authority quoted above, the conversion of the Tiguas of Cuaray is due to Fray Esteban de Perea. This would put it between 1617 and 1630, probably in 1628, since Benavides mentions six churches at the Salines in the *Memorial*, p. 23. I have the originals of two short notes written by Fray Juan de Salas to Governor Alonzo Pacheco de Heredia, dated "de este Pueblo de Coarac," September 24 and 28, 1643.

[3] Fray Gerónimo de la Llana was a native of the city of Mexico, and came to

Cuaray was abandoned on account of the Apaches before the insurrection of 1680. Its inhabitants fled to Tajique,[1] and at last gradually drifted to El Paso del Norte. If the people of the village of "Isleta del Sur" on the Texan side of the Rio Grande are asked whence their forefathers came, many of them point to the north in reply, saying, "From Cuaray."

Cuaray is among the few picturesque sites in New Mexico that deserve the epithet of lovely. Situated almost on the

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New Mexico after 1629. He was at Santa Fé in 1636 according to a certificate signed by him, a copy of which is in my possession. *Carta de Fray Gerónimo de la Llana*, in the *Autos sobre Quexas contra los Religiosos del Nuevo México*, 1636, MS. According to Vetancurt he died at Cuaray, on July 19, 1659. *Menólogio*, p. 240. Ten years after, Fray Nicolas de Freytas, noticing that the body was injured by moisture, had it taken up, and buried again in a rude coffin made of pine wood. *Certificacion del Padre Fray Nicolas de Freytas*, October 26, 1706 (in the documents upon the exhumation of the body of Father de la Llana, MS., 1759): "Y despues de diez años le hallé yntacto y incorructo, con su hauito y le colocó en un caxon de madera de pino y lo puso en la mesa del altar mayor y entre las manos le puse un pergamino en que está escripto la notizia de dho Padre que fué varon apostólico." There is hardly any doubt that the body, when exhumed one hundred years after his death, was found at Tajique, and not at Cuaray, according to the testimony of the Indian Ché, contained in the same documents. Vetancurt, however, inverts the order of the pueblos, by placing Cuaray three leagues (nine miles) south of Chilili, and Tajique six miles farther south. The distances are of course incorrect, and the order in which the pueblos are enumerated still more so. From Chilili to Tajique is at least twelve miles, and thence to Cuaray or Punta de Agua the same (military measure 11.51 miles). Furthermore, it is well established that the pueblos were then where they are now. Such inaccuracies are numerous in Vetancurt's otherwise valuable book. He errs in geographical statements, and sometimes in dates. This is not to be wondered at, since he himself was never in New Mexico, and wrote at a time when that province was still inaccessible to Spaniards and priests. But it is well to call attention to such mistakes, as they might mislead students who are not well acquainted with the localities.

[1] *Dilixencias sobre la solizitud del Cuerpo de Fray Gerónimo de la Llana.* In 1671 Indians from Cuaray were married at El Paso del Norte by Fray Garcia de San Francisco. *Libro Primero de Casamientos*, MS., fol. 12. The road to the Salines was then blocked by the Apaches, and it is possible that some of the pueblos were already abandoned. In 1659 Cuaray certainly was still inhabited. Freytas, *Certificacion*, "Y despues de diez años," since Fray de la Llana died in 1659.

southwestern edge of the dismal salt lakes, it is separated from them by wooded hills, while to the west and northwest the valley of Manzano and the mountains beyond are in full view. The red sandstone formation of the rocks that crop out in the neighborhood is in pleasant contrast with the sombre green of the trees and shrubbery covering the hills. I saw Cuaray several times, always in winter and under the most unfavorable circumstances, and yet carried away with me a vivid impression of its singular beauty. Above the low mounds of the former pueblo rise the stately ruins of the old church, a massive edifice of stone, the walls of which are still at least fifteen feet high, and four thick. It measures 16.4 by 34.1 m. (50 by 104 feet), and had two towers on the eastern façade. All the wood-work of the interior has been burned. The convent is reduced to indistinct foundation lines measuring 15 by 17 m. (49 by 58 feet). The pueblo is built of sandstone slabs, and the walls have the usual thickness of 0.25 to 0.30 m. (10 to 12 inches). The average size of a dozen rooms which I could measure was 3.3 by 4.5 m. (11 by 14¾ feet). The pueblo formed at least three squares, surrounded by the usual large buildings. I am not sure as to the existence of estufas, as deep snow filled every depression, and covered the mounds with a layer at least a foot deep. But on a second visit, when there was less snow on the ground, I think I noticed traces of a circular estufa. On the same occasion I also had an opportunity of examining the manufactured objects. The prevailing pottery was coarsely glazed, but there were also corrugated fragments, and quite a number of thin orange-colored shards with a fine glaze, decorated with black lines. This latter pottery, and potsherds of the ancient black and white and corrugated varieties, were exclusively represented on the top of a hill at the southern extremity of the pueblo ruins. This locality, with pottery so distinct from that on the other mounds, and still not farther than twenty meters from the last of them, looked as if small houses had formerly stood on it. Much flint and some obsidian was scattered over the mounds indiscriminately.

Cuaray is credited with having had six hundred inhabitants,[1] and I should not consider this to be an exaggeration, as the houses were probably two and three stories high. There is an arroyo running past the village, and a spring near by with permanent water. The soil is fertile, but I think it probable that most of the fields of the pueblo lay higher up towards the Manzano. Possibly the apple grove at Manzano was the orchard of the former mission of Cuaray. Gardens, fruit trees, and vineyards in New Mexico, in the seventeenth century, were mostly connected with missions, except at Santa Fé and perhaps in the Rio Grande valley, where were the largest haciendas of the Spanish colonists. If there was no mission at Manzano, then the old fruit trees must have belonged to the mission of Cuaray. There were some Spanish ranchos in the district of the Salines, but cattle and horses, and not fruit raising, occupied the attention of their owners.[2]

The bitter hostility of the Apaches to the Pueblo Indians of the Salines did not prevent the latter from occasionally courting their friendship and even entering into alliances with them against the Spaniards. One of the best planned attempts at insurrection, previous to the successful outbreak of 1680, originated at the pueblo of Cuaray, between the years 1664 and 1669. An Indian of that village, known under the Spanish name of Estéban Clemente, was the soul of this conspiracy, and was in secret communication with most of the other pueblos. The plan was first to deprive the Spaniards of their horses by having them all stolen by the Apaches, and afterwards, on the eve of Holy Friday, to fall upon all the whites simultaneously. But the plot was detected, the leader executed, and the danger thus averted.[1]

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[1] Vetancurt, *Crónica*, p. 324: "Tenía seiscientos Cristianos de nacion Tigua, que hablaban el idioma de los Piros." The last sentence is one of the customary inaccuracies of Vetancurt.

[2] There seems to have been an Alcalde Mayor in the vicinity of Cuaray. This is indicated in the *Villetes* of Fray Juan de Salas, 1643, MS. At the estancia north of Cuaray there was a rancho inhabited during the lifetime of Fray de la Llana by Doña Catalina de Salazar. *Dilixencias sobre el Cuerpo, etc.*

Cuaray is the last pueblo on the borders of the Salines positively known to have been inhabited by the Tiguas. On the southeastern corner of the basin are ruins which I have not visited, but which I presume are those of a Piros village. The range of the Tiguas was limited to a narrow strip along the eastern slope of the Manzano chain, beginning with Chilili in the north, and ending with Cuaray in the south. Considering each site of these pueblos separately, they were all well selected; for each had its permanent water supply, sufficient wood, tillable land within easy reach, and an open view towards two at least of the cardinal points. But none of them occupied a very strong position for defence, nor are there any traces of defensive constructions other than the many-storied houses. The pueblos were at such short distances apart that they could easily assist one another in case of attack, and yet they had to yield to their hereditary foes, and the feeble protection of the Spaniards could not save them. They were merely outposts of the Pueblo country, separated from their brethren on the Rio Grande by a forbidding mountain chain, through which only two passes lead, which an enemy could easily occupy. The destruction of the Pueblos of the Salines became inevitable as soon as the Apaches spread in that direction, which they had begun to do previous to the advent of the white man. When the Pueblos had received from him new domestic plants, and above all new domestic animals, the inducement for the nomads to prey upon the house-dwelling Indians was greatly increased. Only rapid colonization of New Mexico could have saved the villages on the east side of the Manzano chain, which was impossible, as Spain was too weak and New Mexico not sufficiently inviting to warrant extraordinary exertions.

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[1] This plan of insurrection is mentioned in the *Ynterrogatorio de Preguntas* (MS.), by Diego Lopez Zambrano: "Y no obstante todos estos castigos, otro Yndio Gobernador de todos los pueblos de las Salinas, á quien en secreto obedecía todo el reyno, dando órden á los Yndios Christianos, hizo otra conjuracion en general, y éste se llama Estévan Clemente, haciendo que todas las caballadas de las jurisdiciones las echáron á las sierras para dexar á pié á los Españoles, y que Jueves Santo en la noche como se había tratado en el gobierno del General Concha, se había de consumir la christiandad, sin que quedára Religioso, ni Español, y habiendo descubierto esta traicion ahorcaron al dicho Yndio Estevan, y sosegaron á los demas, y en los bienes que sequestraron del dicho Yndio se halló dentro de su casa cantidad de idolos, y ollas enteras de polvos de yerbas idolátricas, plumas y otras porquerías."

Aside from the ordinary natural advantages which the Tigua pueblos of the Salines enjoyed, the region afforded some peculiar inducements. Not the least was its proximity to a country rich in game. The levels between the Salines and Galisteo were favorite haunts of the antelope, and the buffalo also may formerly have approached the Salines. The mountains in the west abound in bears, deer, and turkeys.

To what extent the great deposits of salt may have been an inducement to the Tiguas for establishing themselves in their vicinity is uncertain. The natives were acquainted with salt as a condiment in times anterior to the Spanish era, and it is not unlikely, therefore, that this commodity may have been one cause of the original settling of the Tiguas east of the Manzano chain. That a limited commercial intercourse resulted from it seems quite probable.

To the Spaniards in Southern Chihuahua the Salines soon became very important. Salt from Manzano was carried in the seventeenth century as far as Parral for the reduction of silver ores,[1] and the salt trains had become a resource for the Apaches also. But by 1670 the Apaches had intercepted all communication with the Salines, and the trains returning from Southern Chihuahua were compelled to remain at El Paso del Norte.[2] They were probably the last that carried salt to Parral, for in that year, or very soon after, the missions at the Salines had to be abandoned.

The Tiguas shared the neighborhood of the salt lakes with the Piros. It is probable that the ruins on the southeastern corner of the basin were those of a Piros village, because the pueblos on the so called "Médano," or great sand-flow, of the Salines at that corner, according to a dim tradition, were also Piros pueblos. Tabirá, situated on the Médano, of which I shall speak presently, was an historic Piros settlement. The old pueblo at the northeastern end of the Jumanos Mesa appears to me, therefore, to be the most northerly settlement made by the same tribe. For the definitive settlement of such questions, we must wait until the folk-lore of the Tiguas and Piros becomes the subject of systematic investigation.

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[1] Compare *Real Cédula*, June 30, 1668, MS.: "Pero que haudo treinta y cinco años que se pobló el Parral y siendo considerable su comerzio a y gran cantidad de ellos que conduzen bastimentos y ropa al Parral y traen plata y otros generos y pasan de Vazio al Nueuo Mexco para traer sal á las minas con que," etc. Vetancurt, *Crónica*, p. 325: "Que en diez leguas que coge de circuito toda la agua llovediza se convierta en dura sal, que sacan como tablas y cargan para toda la Custodia y aun para las minas del Parral."

[2] *Libro Primero de Casamientos de el Paso del Norte*, fol. 12. In 1670 many Indians from the pueblo of the Jumanos were at El Paso, but the roads to the Jumanos country (the Salines) were closed by the Apaches. In the following year, many Indians from Abó also were living at El Paso for the same reason.

B. *The Ruins of the Piros Pueblos, and the former Country of the Jumanos.*

Until within a few years previous to the great outbreak of the Pueblo Indians in 1680, the Piros occupied not less than three villages in the vicinity of the Salines: Abó and Tenabó southwest of the Manzano, and Tabirá about thirty miles southeast of it, on the so called Médano, in the southeastern corner of the Mesa de los Jumanos.

Besides these three pueblos there is mention of a fourth, the location of which I have not been able to ascertain, that of the Jumanos. In addition, there are several other ruins of large-house villages, some of which may have been still occupied in the seventeenth century, or at least at the close of the sixteenth.[1] Besides the Piros, the Jumanos inhabited, or roamed over, the country. To what extent the Jumanos of New Mexico were village Indians, I am unable to say. In Eastern Chihuahua they seem to have dwelt in huts or small houses of a permanent character, covered with roofs of sod or earth, similar to those of pueblo buildings.[2] There is much contradiction in the older authorities concerning the true condition of the Jumanos of New Mexico. Oñate, in 1598, speaks of the "three large pueblos of the Xumanas, or striated Indians, called, in their language, Atri-puy, Genobey, Quelotetrey, Pataotrey, with their subjects." Among these villages one is described as being very great.[3] Thirty-two years later, the Jumanos of

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[1] I refer to the statements of Espejo, Chamuscado, and of Benavides, regarding the number of the inhabited pueblos in the neighborhood of the Salines.

[2] Espejo, *Relacion del Viage*, p. 105: "Y con pueblos formados, grandes, en que vimos cinco pueblos, con mas de diez mil Indios y casas de azutea, bajas y con buena traza de pueblos." *El Viaie que hizo Antonio de Espio* (page 4) corrupts this original text by adding, "y de calicanto." This means "of stone and lime."

[3] *Obediencia de San Juan Baptista*, p. 114. *Discurso de las Jornadas*, p. 266.

New Mexico are spoken of as living in tents and leading the life of nomads.[1] The same must be inferred from the diary of Juan Dominguez de Mendoza, in 1684.[2] But in 1700 a "pueblo of the Jumanos" is mentioned.[3] There are depositions of Indians from this pueblo of the Jumanos in the years between 1681 and 1684; but they declared themselves to be Piros.[4] I cannot determine, therefore, whether any of the ruins south or east of the Salines are those of permanent villages of the Jumanos tribe.[5]

The name "Mesa of the Jumanos" is given to the extensive plateau bordering the basin of the Salines in the south, which rises rapidly to about four hundred feet above the level of the salt lakes, and then gradually slopes down to the south and southeast. Its northern brow lies higher than Manzano, but the so called Gran Quivira, as the ruins of Tabirá are popularly called, lies five hundred feet lower, so that the slope, in its whole length of seventeen miles, is about nine hundred feet. The northern slope and brow of the mesa are covered with trees, but the southern declivity is a grassy plain without permanent water. On the north side, however, there are a few inconsiderable springs.

On the east, the mesa is bordered by a long flow of sand, resembling the bed of an ancient river. This "Médano," as it is called, runs in a southwesterly direction. The western rim of the mesa is cut off rather sharply, and its brink is wooded to some extent. The Médano, as far as known, is waterless, and on the whole surface of the mesa no traces of springs have been found. South of Quivira lies an arid waste. East of it, it is many miles to the nearest watering place, at the foot of the Sierra de la Gallina. The valley of Abó, west of the Mesa de los Jumanos, offers the only exception in this otherwise very unprepossessing section of New Mexico. It is a long depression, partially wooded, with a tiny stream, the Arroyo de Abó, running through it for some distance. The village of Abó itself lies twenty miles south of Manzano, in a pleasant valley, which, both higher up and lower down, narrows to a cañon of moderate depth. The site is quite romantic. Cliffs of red sandstone rise along the little brook, crowned by clusters of pines, cedars, and junipers. In the northwest, the Manzano chain like a diadem, silvery white in winter, dark green in summer, crowns the wooded landscape.

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[1] Benavides, *Memorial.*

[2] *Diario de las Jornadas*, 1684, MS.

[3] Escalante, *Relacion*, p. 180.

[4] These documents are interrogatories concerning insurrections of the Mansos and Sumas now at El Paso del Norte.

[5] The pueblo of the Jumanos is said by Escalante, *Carta al Padre Morfi*, (par. 2,) to have been destroyed by the Apaches. Vetancurt (*Crónica*, p. 325) says that fifteen leagues from Abó there were a few "Xumanas, que eran de Quarac administrados."

Nearly in the centre of this valley rise the picturesque ruins of the church of San Gregorio de Abó,[1] with the remains of its convent; and adjacent to it are the rubbish mounds of the former pueblo, forming several quadrangles communicating with one another. It was a pueblo similar to Cuaray, but larger, and built of stone and mud. Abó lies nearly a thousand feet lower than Manzano, and there was consequently less snow on the ground, so that I could make at least an approximate ground plan of the ruins. But I had the misfortune afterwards to lose the detailed field-notes upon which this ground plan was based.[2] The church is smaller than that at Cuaray, and built mostly of stone, with some pillars of adobe. The stones from the pueblo ruins have been used for building the houses of the modern hamlet of Abó, so that these ruins show traces of only one story. But the inhabitants informed me that forty years ago[1] there were three stories still visible in places. I saw two circular estufas, and judge the pueblo to have contained as many as a thousand souls, provided all the houses were simultaneously occupied. The pottery is of the coarsely glazed kind; and flint and some obsidian was also noticed by me. Old residents of Abó informed me that, when they first opened the lower cells of the pueblo, they found in some of them unburied skeletons.

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[1] Vetancurt, *Crónica*, p. 325: "San Gregorio Abbo. . . . Tiene su sitio en el Valle de las Salinas." This is another of the erroneous geophraphical statements of this author; Abó lies twenty miles south of the most southerly edge of the salt basins.

[2] When I surveyed Abó, on December 31, 1882, it was so cold that I could scarcely write in the open air, so I made but short notes, which I transferred to other sheets from time to time in the nearest house. From these sheets I drew a

I will quote here the earliest published description of the ruins in the English language, by Lieut. J. W. Abert, who visited the place on the 4th of November, 1846, and says: "At sundown we reached Abó, where I found my party comfortably encamped. This town is also one of the ancient ones; there are most extensive ruins scattered around in all directions, all built in the style of those at Quar[illegible]. Here, also, is a large cathedral. Its ground plan is in the form of a cross; the short arm is twenty-two and a half feet wide, the long arm is thirty feet wide; their axes, respectively, twenty-seven feet and one hundred and twenty feet; and at the head

ground plan in colors, which, together with the remainder of my water-color sketches, are now in the Vatican Library at Rome. They were presented to Pope Leo XIII. by the Archbishop of Santa Fé on the occasion of the pontiff's jubilee. The Archæological Institute had not the means for publishing them, and very kindly left me at liberty to dispose of them for my own benefit. All my endeavors to place the collection in this country failed, owing to lack of interest in the subject. But the ground plans of Cuaray and Abó will be carefully preserved in the Vatican Library. The sheets of field-notes I afterwards lost, together with a few other pages of my Journal; but this was after I had painted the ground plans in detail.

[1] The settlement at Abó, which consisted in 1882 of half a dozen houses, was made after 1849.

of the cross there is a projection about nine feet square; this makes the total length one hundred and twenty-nine feet. The areas, intersected at a distance of thirty-four feet from the head of the cross, or forty-three, including the projection. The areas of the cross coincide with the lines that pass through the cardinal points. In the east end of the short arm there is a fine large window, the sides of which have what is called a flare, a style often used in Gothic windows. The walls of the church are over two feet in thickness, and beautifully finished; so that no architect could improve the exact smoothness of their exterior surface."[1]

The rocky bed of a small mountain torrent, called Arroyo del Empedradillo, separates the church and the ruins adjacent to it from another pueblo ruin consisting of several connected rectangles with faint traces of estufas in their interior squares. These ruins are much more obliterated than those about the church; the mounds are lower and more flattened, and gave me the idea that they were the vestiges of an older pueblo of the same tribe. According to the size of the mounds and their number, this second village contained more people than the first. I cannot decide whether there were two pueblos of the Abó tribe successively inhabited, or whether there was but one, built on both sides of the arroyo. The pottery is the same in both, with coarsely glazed decorative lines and symbols, plain red, and black. Some corrugated and indented shards also occur. If the size of the church be any indication, I should presume that the historical village was the one near it, and that the ruins beyond the Arroyo del Empedradillo are those of a more ancient town, abandoned previous to the establishment of the mission, or soon afterwards. If, however, both settlements were occupied contemporaneously, that would make Abó a very large pueblo, probably equal in population to Pecos.[1]

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[1] *Executive Document, No. 41. Report of Lieut. J. W. Abert of his Examination of New Mexico, in the Years 1846 and 1847*, p. 488. The accompanying view of the church is quite well executed.

No information on this question is found in the documentary material at my command. Abó is mentioned as early as 1598;[2] but the foundation of the mission dates between 1625 and 1644. Fray Francisco de Acevedo is credited with having caused the erection of its church, who died at Abó on the 1st of August, 1644, and his body was buried within the temple.[3] The Apaches compelled the abandonment of the mission and of the pueblo before the insurrection of 1680, and many of its inhabitants were already at El Paso del Norte in 1671.[4] To-day the Piros of Senecú in Chihuahua claim to be the last descendants of the Abó tribe.

I cannot sufficiently insist upon the necessity of studying the folk-lore of the small remnant of the once numerous stock of the Piros which to-day inhabits Senecú. With the help of these traditions we may possibly be able to determine which of the other ruins in the Abó valley are prehistoric, and which belong to the historic period. The dispersion of the Piros, the long period of complete abandonment of their country owing to the Apaches, and the absence of documentary material concerning the missions,[5] have created a blank which could be partly filled only in Spain, unless the folk-lore of the Piros at Senecú comes to our rescue.

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[1] I may overrate the population of Abó in placing it at two thousand souls. This estimate of course includes both ruins.

[2] It appears first in the *Obediencia y Vasallaje por los Indios del Pueblo de Cuéloce*, October 17, 1598 (Doc. de Indias, vol. xvi. p. 123). Abó is mentioned in company with "Xenopué," "Cuéloce," and "Patasce." These last I cannot identify. Previously, in the *Obediencia de San Juan Baptista* (p. 115), it is mentioned as "Abbo."

[3] Vetancurt, *Menologio*, p. 260. Fray Francisco de Acevedo was a native of Seville, and took orders at Mexico in January, 1625. "Hizo la iglesia en San Gregorio en Abbo." Also *Crónica*, page 325.

[4] *Libro Primero de Casamientos del Paso del Norte.*

[5] This is due to the destruction of the church records by the Indians in 1680.

Abó is not the only historic pueblo in that vicinity. Fray Francisco de Acevedo is said to have built a chapel at a pueblo called Ten-abó,[1] but where it stood I am unable to determine. I have thought that the ruins at Siete Arroyos, to the left of the road that leads from Abó to the Rio Grande, may be those of that village. I was informed of the tradition that there had formerly been a church on this spot. The ruin at Siete Arroyos, which I was prevented from visiting by the state of the weather and by sickness, is described as that of a pueblo smaller than Abó, but larger than the other ruins found elsewhere in the valley. Of these I visited four with better success than I had at the main ruin.

Three miles south of Manzano begins a wooded ridge, on the summit of which stands a little settlement called "La Cienega." It is a very cold spot in winter, but there is permanent water and fertile soil. Precipitation is also greater at that altitude than lower down, so that irrigation was not required for the corn, beans, and squashes which only the Indian cultivated previous to the introduction of other plants by the Spaniards. I saw pottery found at Cienega, belonging exclusively to the most ancient kinds. I was not surprised, therefore, to hear that remains of small houses have been found scattered over the site of the present Mexican settlement. Such ruins also occur farther south, near the Abó road, at the "Loma Parda," and east and south of Abó.

About a mile east of Abó, on the "Cerro Pelon," a bare hill in the centre of a basin partly overgrown with trees and shrubs, stand some mere flat mounds, which were houses of the small type. The pottery on their surface is characteristic, not a single glazed specimen appearing among it.

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[1] *Menologio*, p. 260: "Y en dos pueblos pequeños de Tenabó y Tabira otras dos menores iglesias." *Crónica*, p. 325: "Tiene dos pueblos pequeños, Tenabó y Tabira, con ochocientas personas que administraba un religioso."

At the base of the western front of the Mesa de los Jumanos, about four miles northeast of Abó, at what is called "Torneada," I examined the ruins of two houses. The foundations are plainly visible, and from the number of cells I infer that at least one of these houses, if not both, had two stories originally. The walls were of irregular blocks of the red sandstone common in the country, of the usual thickness. The pottery was distinctly of the large-house kind, having a thick glaze over the decorative lines and symbols. Traces of a circular estufa appeared near one of the buildings.

There is an extensive view from the spot on which these ruins stand. The whole valley of Abó spreads out, and west of it loom up the peaks along the Rio Grande, from the Sierra de los Ladrones in the north to the Fra Cristobal in the Jornada del Muerto. The Mesa de la Torneada, at whose base the ruin lies, is an advanced post of the great Jumanos plateau, and the nearest watering place, the "Aguaje," is about a mile distant. For the few families, perhaps sixty people, which the two houses could shelter, there is sufficient arable soil in the neighborhood. As to the tribe to which this little pueblo may have belonged, I conjecture that they were Piros, since the latter held the entire valley, and I have no knowledge of any other stock preceding them that dwelt in buildings of the large-house type. The ruins do not show as much decay as some of the mounds at Abó.

If we follow along the western front of the Mesa of the Jumanos to the southward, a series of dry "cañadas" are crossed, all of which contain patches of very fertile soil, although there is no water. But the summer rains suffice for the growing of corn, and other vegetables, and the present inhabitants of Abó remove to these spots in summer, rather than rely upon the scanty water supply afforded by the inconsiderable Abó Creek. The Cañada del Puerto Largo is the most considerable of these gulches, which all descend from the Great Mesa, and through two of which old trails lead to the famous ruins of Gran Quivira, or Tabirá. Not far from the Puerto Largo I found a number of ancient summer lodges, or ranchos, of Pueblo Indians, which were indicated by posts stuck in the ground, and by forked branches, half buried, scattered about them.

At the first glance these vestiges resembled those of huts of nomadic Indians; but a number of glazed potsherds scattered about indicated that earthen vessels had been used on the spot for a certain length of time; and, besides, the appearance of foundations of rubble proved that I had before me the remains of ancient summer ranchos of sedentary Indians. At this day the people of Abó spend part of the summer there to watch their crops.

There is a very characteristic cluster of small houses on a wooded mesa above the bottom in which the ruins of the church and pueblo stand. This cluster lies in a direct line not over a mile from Abó. A number of foundations of rubble, little mounds of rubbish, round as well as elongated, indicate buildings varying from 3 meters (8½ feet) square to 3 by 6 meters (8½ by 17 feet). The potsherds are characteristic, and as different from those at the large pueblo as is the pottery of the small-house village above the mouth of the Parida, near Socorro, from the pottery of the compact ruin in the bottom below. Here also were vestiges of the two types of buildings in close proximity to each other, indicating two successive occupations, perhaps by tribes distinct from each other, perhaps by one and the same tribe changing its architecture and house life in the course of time.

The mesa or "loma" on which these small houses stood overlooks a gorge bordered by low cliffs, called the Cañon de la Pintada. The name is derived from a number of aboriginal pictographs, executed in red, yellow, green, black, brown, and white, in sheltered places on the walls of the cliffs. They are mostly human figures, and their colors lead me to suspect that they date from the historical period, for the yellow looks like chrome-yellow, and the green is far too bright not to be some paint unknown to the primitive Pueblo Indian. Some of the figures are interesting; for example, a man in yellow, with a round cap on his head. This figure is called by the people of Abó "El Capitan." Really important are two figures of Indian dancers, one of them masked, showing the naked and painted chest and the gaudy kilt worn by the men on solemn occasions. The other plainly represents a "delight-maker," or jester, with his body painted black and white after the manner of the Koshare, Kosare, Kuenshare, or Shi-p'hung, as these clowns are called among the Queres, Tehuas, Jemez, and Tiguas.[1] By the side of the human figure stands a snake, apparently rising to, or descending from the face of the dancer. When I showed a copy of this pictograph to one of the leading Shamans of San Juan, he appeared startled, and finally confessed that it was a record of the snake dance, in the shape of a Kosare playing with the reptile.[2] As the paintings are probably of the time when New Mexico was already Spanish, I believe that the Piros of Abó made them. The snake dance is a Cachina, and these pictographs therefore confirm what my Indian friend from Cochiti stated in regard to the paintings at the Cueva Pintada, — that such records of the Cachina were usually executed whenever a pueblo was to be forever abandoned. Should this hold good in the light of future investigations, it is quite likely that the paintings in the Cañon de la Pintada date from the time when Abó was definitively abandoned, or from about 1671. Besides the human figures, there are various symbols, such as the rain, shields, and head-dresses, all of which figure in Pueblo Indian dances, and more particularly in the Cachinas.

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[1] Part I. pp. 286, 303, 307, and 315.

[2] It forcibly recalls the observation recorded by Espejo, *Relacion y Expediente*, p. 180: "Hicieronnos un mitote y baile muy solemne, saliendo la gente muy galana y haciendo muchos juegos de manos, algunos dellos artificios con vivoras vivas, que era cosa de ver lo uno y lo otro." This was at Acoma. The pictograph seems to prove that the snake dance was also practised by the Piros.

An arid plain separates the pass of Abó from the Rio Grande bottom, and neither on that plain nor in the pass itself have I heard of or noticed any vestiges of Indian habitations. Absence of permanent water and lack of precipitation, combined with the want of arable soil, render it likely that these sections will be found to contain no ruins. West of Abó there were Piros pueblos along the Rio Grande, at Sabinal and La Joya; but at least twenty miles in a straight line separated them from the nearest village in the Abó valley, at Siete Arroyos. This separation of the two clusters is interesting. It may bear upon the problem of how and from which direction the Piros reached Abó and the Salines, in times anterior to the sixteenth century; and whether their pueblos on the Rio Grande are not the result of a gradual withdrawal from earlier settlements established still farther east.

I will now turn to the ruins about the Mesa de los Jumanos, and the long mysterious Gran Quivira.

Along the western rim of the Médano extends a line of pueblos, among which the Pueblo Blanco, the Pueblo Colorado, and the Pueblo de la Parida are best known. On account of continuous snow-storms, I could not visit any other of them than the so called Quivira, and two smaller ruins, three or four miles south of it. Southwest of these, Chupaderos is the next place where pueblo remains are found, and thence on towards Socorro the ruins on the Parida gulch continue the series. Indian villages of the large-house type, seem to have extended on a line from Socorro northeastward, as far as the southeastern corner of the salt lake basin. Presumably they were Piros, and the line indicates either an advance of that tribe from the Rio Grande valley towards the Salines, and perhaps beyond, or the contrary.

A volcanic mesa rises east and south of Chupaderos. This plateau has been regarded by some as of modern origin, and the destruction of the pueblos on the Médano, especially of Quivira, has been attributed to its upheaval. That seismic disturbances may have proved disastrous in such remote regions, and remained unnoticed by the inhabitants of the Rio Grande valley except as violent but harmless earthquake shocks, is not impossible, but there is no doubt that Quivira, for instance, had to be abandoned on account of the Apaches, and not owing to volcanic phenomena of a destructive character.[1]

Of the ruins south of Chupaderos I shall treat hereafter. I have already noticed the ruins east of the Médano, at the Sierra Capitana, and perhaps beyond, nearer to the Pecos River. On the Mesa del Camaleon, towards the Sierra de la Gallina, there is said to be a considerable ruin, which was described to me as that of a large-house or typical pueblo.

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[1] See Introduction to Part II, page 24. I also refer to my letter to the commitee of the Institute in the *Fifth Annual Report*, page 88. My friend, Mr. R. B. Willison of Santa Fé, told me of a legend current among the Indians of Senecú in Chihuahua, that when their ancestors were moving from Abó to the Rio Grande they saw in the east or southeast a mountain burning. Some of the Apaches also speak of mountains being on fire in that region. I have not discovered any trace of such phenomena in my documentary material.

The ruins on the Médano north of the so called Quivira have also been described to me as regular pueblos, and as provided, each of them, with one or more artificial water tanks. There are no traces of springs near any one of them. Aridity is characteristic of the Mesa of the Jumanos and its surroundings, and it has perplexed all those who have investigated the region and paid some attention to its antiquities. Many have been the hypotheses resorted to in order to explain how agricultural Indians could subsist in such a waterless country, destitute not only of means for artificial irrigation, but even of the water necessary for personal use. The Médano has been imagined to have been a large river during historical times, which dried up in consequence of the volcanic upheavals at Chupaderos. I repeat here what I wrote to the Institute on this subject in February, 1884: —

"The tale that within historic times a great river flowed southward east of the Sierra Osdura, Sierra de San Andres, even of the Sierra de los Organos and of the Paso range, which stream had been interrupted by the upheaval of the great lava bed south of the Gran Quivira and north of the Sierra Blanca, is deeply rooted and often told. There is very positive evidence to the effect that within the documentary period no such cataclysm has occurred, and the cause of the abandonment of what is called Quivira now is well known."[1]

To this I will add, that, since it is well established that the Salines were visited by Chamuscado in 1580, probably by Espejo in 1582, and certainly by Oñate in 1598, one of them could not have failed to notice this river had it existed; for a stream of such magnitude, second in size only to the Rio Grande, must have attracted their attention, and would have become an important factor in the subsequent settlement of the country. There is no trace of it in any of the documents of these periods. Hence it is legitimate to conclude that, if the Médano ever formed a considerable stream, it was prior to the sixteenth century, and if the obliteration of that river was due to the upheaval of the Chupaderos Mesa, that disturbance also took place before the Spaniards arrived in New Mexico. Lastly, since, as I shall hereafter establish, the pueblo called Quivira was in existence as late as the seventeenth century, its destruction cannot have been due to volcanic phenomena at Chupaderos.

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[1] *Fifth Annual Report*, p. 88.

I should not be surprised if, in the course of future historical investigations, it should be found that the pueblos of the Médano, or some of them besides Quivira, were occupied as late as the middle of the seventeenth century. That they were Piros villages is almost certain; and we must remember that Chamuscado, in 1580, saw eleven pueblos around the Salines, and Benavides, half a century later, speaks of fourteen or fifteen. Even allowing three pueblos to the Tiguas at Manzano, it leaves for the Piros a greater number than are positively identified as having belonged to them. The cause of the abandonment of these settlements was doubtless the inroads of the Apaches.[1]

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[1] Allowing three villages (an exaggerated number) to the Tiguas at Manzano, one at Chilili, one at Tajique, and one at Cuaray, it leaves to the Piros from five to nine. Only three are positively known, — Abó, Tenabó, and Tabirá, or Quivira. Adding to these the problematic "Pueblo de los Jumanos," there are still from one to five to account for. Therefore it seems to me probable that one or more of the pueblos called to-day "Blanco," "Colorado," and "Parida," were still inhabited after the Spanish occupation of New Mexico.

It is possible that the danger to which the Piros on the Médano were exposed from the Apaches caused the smaller pueblos to unite in a larger one, where a mission had been established, and where a small escort of soldiers did what was usually called "frontier" duty. Tabirá, or Quivira, was probably that mission; afterwards Abó. That there was such an escort at the Salines, not far from Cuaray, is proved by Fray Juan de Salas in his *Villetes* to Governor Pacheco de Heredia in 1643.

I have also heard of vestiges of detached houses on the eastern edge of the mesa, but this needs confirmation. The chief interest for the antiquarian, however, lies in the ruin called "La Gran Quivira." In the first part of this Report, I have already stated that this designation is a misnomer, and that these remains, long a mystery, are those of the Piro village and mission of Tabirá.[1]

A ground plan of the ruins is given on Plate I. Figure 29. It will be noticed, —

1. That the pueblo, although considerable, by no means justifies the extravagant descriptions of tourists and prospectors. The population of Tabirá cannot have amounted to more than fifteen hundred souls.

2. That it was a scattered large-house village, — a long, narrow pueblo, with many-storied houses, similar in its arrangement to the pueblos of Santo Domingo, Jemez, and Laguna, of to-day.

3. That there were two churches, each with its convent attached.

For a corroboration of my ground plan, as well as of some of the details which are to follow, I refer to the plat published by Lieutenant Morrison, U. S. Army.[2] It will be seen that his survey agrees with mine in the main, and that I have not underrated the extent of the settlement. Tabirá presents nothing unusual to one who is familiar with pueblo architecture, either of the past or of the present time. And yet for nearly a century these ruins have been looked upon as something unique among the antiquities of New Mexico, in size and in manner of construction, and as mysterious on account of their situation in a waterless waste.

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[1] Page 131, note 2.

[2] *Annual Report of the Chief of Engineers for 1878*, Appendix N M (App. F.), Part III. p. 1558.

I have already said that Quivira was situated near the southern apex of the triangle formed by the Mesa de los Jumanos. From Manzano the distance is about thirty-five miles, and it is seventeen from the northern rim of the mesa. The space between that rim and the ruins is a gradual slope, covered with grass and without permanent water. At the foot of the ruins, on the west, lies the Médano, a sandy gulch, above which rises a hill of gray limestone, a promontory of the ridges bordering the Médano on the east. On this hill, which is quite narrow and dotted with the usual scrubby conifers, lie the ruins, the larger church occupying its westerly brow and overlooking a vast expense of singular bleakness. In the west, the summits of the Socorro and Madalena Mountains peep over the wooded border of the Jumanos plateau; in the south, an undulating level dotted with black shrubs stretches towards the dim mass of the Sierra Blanca; in the east, over dreary ridges and hills, rise the mountains of the Carrizo, the Sierra Capitana, and the Gallina, rugged, dark, forbidding; while the north is occupied by the sloping surface of the plateau. Not a trace of a spring has been discovered near the ruins; not a brook trickles down from the heights in their vicinity.

In this arid solitude the massive edifice of the church, with the mounds of the pueblo, look strangely impressive. From the west the church can be seen miles away, a clumsy parallelopiped of gray stone; from the northeast, through vistas of dark cedars and junipers, the ruins shine in pallid light, like some phantom city in the desert.

An examination of the details dispels the illusions created by distance and surroundings. We find in all eighteen Indian houses of various sizes, and six circular estufas. The largest houses measure respectively 14 by 70 m.; 5.7, 7.8, and 17 by 60 m.; 58.3 by 33.6 m.; and 14.7 and 51.3 by 8.8 m.

The walls are of irregular pieces of gray limestone, laid in adobe mortar, and from 0.33 to 0.35 m. thick. As the stone is quite hard, the work on these walls looks more carefully executed than in many other ruins, but on the whole the difference is not considerable, and the statements that the stones were hewn are utterly without foundation. The pueblo had certainly three stories, in some places perhaps more. The estufas vary in diameter from 6.6 to 8 meters. They are still quite deep, and may have been, like those of Taos, completely under ground. Among the rooms I measured one which was 6.2 m. long by 2.3 m. wide (19 by 7 feet). But the average of 196 cells is 2.8 by 3.7 m. (9 ft. 2 in. by 12 ft. 6 in.). I saw some doorways, low and narrow as at Pecos, with lintels of stones. Traces of the roofs, consisting of occasional beams, of pieces of brush, and of frozen earth, proved that the roofing was the usual one. The estufas had thin stone walls. In short, after three days spent in examining every part of the ruin, I found nothing that was not strictly in accordance with the characteristics of ordinary pueblo architecture. That the village is longer than pueblos of the older kind usually are, and does not appear so compact, is not surprising, since the configuration of the ground compelled the inhabitants to build the houses along the crest of the ridge, and therefore to stretch them out, instead of arranging them in squares. To a certain extent, it might be said that Quivira consists of two rows of houses, forming an alley or narrow street.

A great deal of pottery was strewn over the ruins, the kind with glossy ornamentation largely prevailing; but there was also some corrugated, indented, and plain ware, and a few pieces of black and white. Much flint and some obsidian lay about, and arrow-heads were comparatively numerous. I also found a flint awl, and broken metates and grinders were abundant. In short, the artificial objects fully sustained the impression conveyed by the architecture, that Quivira was an ordinary pueblo of considerable size, whose inhabitants stood on the same level as the other Pueblo Indians of New Mexico.

Southeast of the smaller of the two churches, I noticed a structure forming approximately a hollow square, and measuring 19.2 meters from north to south and 18.2 meters transversely. It had but one entrance, in its southeastern corner, which was one meter wide. The walls were 0.22 m. wide and only 1.6 m. apart. What this construction was intended for I am unable to conjecture.

I have stated that there were two churches at Quivira. The smaller one stands south of the main rows of houses, the larger on the brow of the hill, overlooking the western plain and the Médano. Connected with the former is a yard, some of the circumvallation of which is still visible. The church is much ruined, only the corners standing erect to the height of a few feet.

The larger, and from all appearances newer, church at Quivira is a building of considerable size, since it measures 35.6 meters (116¾ feet) from east to west, and 7.4 meters (23 feet) from north to south. Adjacent to it, on the south, are the ruins of a convent, containing a number of cells and a refectory, all built around an interior courtyard. This convent is 30 meters (98¾ feet) long from east to west, and 40.8 metres (133¾ feet) from north to south. The temple is therefore somewhat smaller than those of Cuaray and Abó, while the convent is larger, — so large even as to suggest the thought that it was destined for the residence of several missionaries. Both edifices are built of the same material as the pueblo houses, but the work is a little more carefully executed, and the walls are much thicker. The east front of the church is nearly two meters (six feet) in thickness, and flanked by two buttresses or towers 4.4 meters (14½ feet) square. Huge beams, quaintly carved like those at Pecos, but more massive, fairly hewn, and approximately squared, are still in place across the doorways and in some parts of the interior of the church, but the roof is completely gone. Much rubbish fills the interior, and from appearances I should judge that the roof was never completed over the whole church, and that the walls of the convent had not been reared to their full height when work on them was given up. The whole has an unfinished appearance, and the same impression has been made by the ruins upon several other visitors. It looks as if the work had been suddenly interrupted, and was never resumed.

After examining the two churches, I turned my attention to the question of the water supply. The most diligent search revealed no trace of springs in the neighborhood, yet there appeared in the middle of the narrow street formed by the principal buildings of the pueblo a groove not unlike a channel. Following this channel in the direction of the northeast, that is up the crest of the eminence, I noticed that it was in places from two to three meters wide (6¼ to 9⅝ ft.) and about 0.50 m. (22 in.) deep. Potsherds lined its course. Three hundred meters (980 feet) northeast of the most easterly house of the pueblo the ditch terminated in an artificial pond thirty-five meters in diameter (115 feet).

A short distance southwest of this pond I found another, thirty meters (98 feet) in diameter and nearly three meters (9 feet) deep. Fifty meters to the eastward of the first was a third reservoir, forty meters (130 feet) across and two meters deep. It stood on the highest point of the ridge, and still shows traces of a rim of stones. In several places this rim is broken through by gullies. The fall from this uppermost tank to the first house of the village is ten meters (32½ feet) in a distance of a quarter of a mile. The rims of all three tanks and of the channel were covered with fragments of pottery, showing that much water had been carried from them to the pueblo; also that washing and cleansing had been performed along the channel and at the ponds.

This system of reservoirs, so arranged that the highest one emptied into the others, fully explained the mystery of the water supply for the Gran Quivira. From the lowest tank the water was led not only to the pueblo, but through it, to the western slope of the ridge on which the village stood. I followed this channel back, and found that it emptied at its lower end into a fourth artificial pond constructed about thirty-five meters west of the northwestern corner of the pueblo, on the declivity, some distance below the church and northwest of it. This last reservoir is as wide as the largest of the upper ones. Its depth is still three meters, and the rim of stones around it is perfect, from northeast by north to west. In the direction of the north and northeast, two artificial channels run from it down the slope, by means of which the small garden plots could be irrigated.

As the aggregate area covered by the four ponds is about 4,100 square meters, or 44,075 square feet, that is, very nearly one acre, it follows that they afforded enough water for the daily supply of a population of fifteen hundred souls, but for the irrigation of the fields which this number of people would require they were of course inadequate.

But Quivira, as well as all the other pueblos in that region, did not require irrigation for the crops which they raised before the Spaniards brought them wheat, barley, and other European plants. The grass on the Jumanos plateau shows, as all those acquainted with the country know, that the precipitation is ample in ordinary summers for raising corn, squashes, and beans. All that was needed, therefore, was water for drinking, cooking, for making adobe mortar, and for the limited amount of washing performed by the Indian. For such purposes the reservoirs sufficed, and they were in such close proximity to the houses that it was not easy for a prowling foe to cut off the water supply. The fact, repeatedly stated to me, that the other ruins on the Médano were all provided with artificial reservoirs, further shows that it was not a device peculiar to Quivira, but one generally adopted by the Pueblo Indians of that region.

On the last day of my stay at Quivira I satisfied myself of the truth of this conclusion. About three miles south-southwest of it, at the other end of a level covered with splendid grass, rises the Loma Pelada, a hill thirty-five meters (98 feet) above the surrounding plain. This bald eminence bears the remains of a pueblo similar to that of Quivira, but considerably smaller and much more decayed. The mounds are shapeless, flat; and, instead of being in long rows, are disposed in a circle around the top of the hill. I noticed two estufas, and only nineteen meters southwest from the village an artificial pond twenty-two meters in diameter. About one mile farther, at Lagunitas, is another pueblo ruin with an artificial water reservoir. It seems, therefore, that all over this arid region the villages relied upon such contrivances, in the same manner as they do to-day at Acoma.

Well may we ask, What could have induced the Indians to settle and to remain in a region where they had to forego the great convenience of a natural water supply? We may conjecture that necessity, the result of being driven back from other points, had something to do with it; still it cannot be denied that, however unprepossessing to the eye, the country offers many advantages to the sedentary native. The soil is far from sterile, wood is everywhere within reasonable distance, and game abundant; and every pueblo on the

Médano stands, as far I could ascertain, so as to be easily defended and to afford excellent lookouts. They are all specimens of that peculiar kind of Indian defensive positions, in which the absence of obstacles to a wide range of view becomes the main element of security. The roving Indian seldom could have taken a pueblo by surprise, still less by direct assault; against both, the villages on the Médano were almost impregnable; against persistent attacks on a small scale, however, the sedentary Indian could not long hold out.

Having shown that the ruins of the famous Quivira not only have nothing mysterious about them, but that they belong to the category of ordinary Indian pueblos, and that the water question can be solved in a very simple manner, it remains to investigate what Quivira was during historical times, and to which stock or tribe of Pueblo Indians it belonged. There is no doubt that it was an historic pueblo, for its churches and their convents are of Spanish origin, but that Quivira was not its true name is also certain, since the Quiviras, as I have elsewhere proved, were a nomadic tribe, and no permanent mission was ever established among them, still less churches built and convents erected.[1]

As it has been ascertained that "Quivira" was not the proper name of the place, and that the village was still inhabited after the year 1600, — and as we know that up to that date the Spaniards had built but a single church in New Mexico, the one at Chamita on the Upper Rio Grande, — for the identification of the place we must inquire which were the missions founded in the seventeenth century east of the Rio Grande valley and south of the Tanos region, where they were located, their names, and which of them were provided with churches and with abodes for resident missionaries. In addition to the Tigua missions already spoken of, to wit, Chilili, Tajique, and Cuaray, there existed in the seventeenth century in the vicinity of the Salines three missions of the Piros, Abó, Tenabó, and Tabirá. A pueblo of the Jumanos is also spoken of, but, while repeated efforts were made to Christianize that tribe, I have nowhere found any mention of a permanent mission with a church or chapel. A priest had in his charge several "ranchos," or gatherings of lodges of the Jumanos, who lived about fifteen leagues (forty miles) east of Abó;[1] but the distance does not agree with that of Quivira from Abó, and still less does the fact that these Christian Jumanos were ministered to from Cuaray tally with the two churches and convents at the Quivira. Our choice is therefore limited to Tenabó and Tabirá; since at both places small churches had been erected by Fray Francisco de Acevedo, and a special priest attended to them.[2] Tenabó appears in but one document of the seventeenth century, while Tabirá is repeatedly mentioned; the latter, therefore, must have been the more important settlement. If the report is true that at the ruin called "Siete Arroyos" in the Abó valley there are the remains of a chapel, I hold that this was the pueblo of Tenabó; in which case Quivira can have been no other than the pueblo of Tabirá. Thus far documentary evidence from the time anterior to the uprising of 1680 has been followed.

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[1] Compare Part I., page 170 *et seq.* Also my essay in the "Catholic Quarterly Review," July, 1890, *Fray Juan de Padilla, the first Catholic Missionary and Martyr in Northeastern Kansas*; and articles in "The Nation," October 31 and November 7, 1889, entitled *Quivira.*

On a map of New Mexico bearing date 1705, the original draft of which was transmitted to the French Academy by a Spanish grandee, Tavira is marked at a short distance south of Abó, but southeast of Cuaray.[3] On a manuscript map, however, of the second half of the past century, preserved in the National Archives at Mexico, Tabirá appears exactly in the position which the Quivira occupies; and the name is also accompanied by the figure of a large church.[1]

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[1] Vetancurt, *Crónica*, page 325.

[2] Ibid.

[3] *Carte de Californie et du Nouveau Méxique*, par N. de Fer, Géographe de

Lastly, an Indian of San Ildefonso, now deceased, but with whom I was well acquainted, assured me most positively that Quivira was the old pueblo of Tabirá; and this was afterwards repeated to me emphatically by an old Indian of Santo Domingo, who was well acquainted with the locality.

From all these indications I conclude that Tabirá is the proper name of what to-day is called "La Gran Quivira."

Tabirá was a settlement of Piros beyond all doubt,[2] and was abandoned, probably before Abó and the Tigua villages of the Salines, in consequence of the Apaches.[3] Its evacuation therefore dates from between the years 1664 and 1671. The smaller and older church had been erected during the lifetime of the founder of the mission, Father Acevedo, prior to 1644, though after 1628.[4] The new church must be subsequent to 1644, and was probably commenced, but never completed, between 1660 and 1670. With these scraps of historical information touching the past of Tabirá, alias Gran Quivira,[5] I take leave of the place to cast a glance at ruins farther south.

A large pueblo exists at Nogal, about twenty-five miles north of Fort Staunton, near the Sierra Blanca, which a Piros

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Monseigneur le Dauphin, 1705. On the same map "Humanos" is marked distinct from Tabirá and south of Cuaray. The directions are of course wrongly indicated.

[1] Tabirá is also spoken of as a former mission, but abandoned, in Morfi, *Descripcion Geográfica*, 1782, fol. 107.

[2] Part I. page 131, note 2.

[3] Escalante, *Carta*, par. 2.

[4] Vetancurt, *Crónica*, p. 325. *Menologio*, p. 260.

[5] For the manner in which the name "Quivira" came to be applied to Tabirá in the latter part of the past century, see my articles on *Quivira*, in "The Nation," already referred to.

Indian told me was in times long past a settlement of his own people. I doubt whether it was inhabited in the sixteenth century. Ruins are mentioned as being numerous about Tularosa, and thence eastward to the Pecos River. Precisely how far south such vestiges extend I am unable to say, but I have been repeatedly told that the Sierra del Sacramento contains no traces of ancient human occupation. That mountain chain lies very near the confines of Texas, and is outside of the territory assigned to me for investigation. It seems, however, that Southeastern New Mexico was not inhabited by sedentary Indians farther east than the Pecos River, or farther south than the thirty-third parallel of latitude.

If the ruin at Nogal is that of a Piros pueblo, and the ancient pueblos on the Médano north of Tabirá were also Piros villages, it points to a withdrawal of that stock from the north, east, and south towards the Rio Grande, in times anterior to the first appearance of the Spaniards. I reserve a discussion of such indications for a later chapter of this Report.

VII.

WESTERN NEW MEXICO.

IN a report devoted to the presentation of results obtained by personal investigation, it may seem out of place to treat of regions which I have not myself studied. Yet I have been compelled to do this in some of the preceding chapters, and I am obliged to do so here, in order to facilitate the understanding of many features, and chiefly in order to complete the general picture. I have personally investigated but a small portion of Western New Mexico, my work having been limited to a strip of country lying on both sides of the Atlantic and Pacific Railroad, and to parts of the southwestern portion of the Territory. But the antiquities which these sections contain cannot well be treated of separately, and I hope, by means of material gathered by other trustworthy investigators, to do better justice to the subject. In all that portion of New Mexico lying west of the Rio Grande valley and of the Jemez and Chama streams, I have visited but a few strips and patches; so that the entire northwest, the country between the ranges of Acoma and Zuñi, and also of the Mogallones, the interior of that chain, and the extreme southwestern corner of New Mexico, must be described by means of the work done by others. It is very difficult to subdivide the whole area geographically with profit to archæological results. We miss the guidance of ethnological and historical facts, which so materially assists us in Eastern New Mexico. With the exception of two districts, Acoma and Zuñi, there is no historical information of any practical importance about the numerous ruins of the vast remainder. Navajo traditions speak of "pueblos," and of people who inhabited them, but as to who they were, and at what time the pueblos were inhabited, they tell nothing. Zuñi folk-lore may yet throw light upon the past of many pre-historic ruins. Of the few traditions of Acoma which I was able to obtain, I shall speak in their proper place.

It may be stated here as an historical fact, that the sedentary population, with the exception of the tribes of Zuñi and Acoma, had vanished from Western New Mexico previous to the arrival of the Spaniards. Laguna is a modern pueblo, founded in 1699.[1] The region in the northwest through which the pre-historic ruins are disseminated was found occupied in the sixteenth century by a semi-sedentary stock, the Navajos.[2] Farther south, outlying bands of the same stock, but so far estranged from it as to discard tribal connection, speak a different dialect, and bear a different name, — the Apaches, — roamed, hunted, and prowled through the otherwise uninhabited country.[3]

The Navajo country cannot be separated, so far as its archæology is concerned, from Southwestern Colorado, Southeastern Utah, and the northeastern corner of Arizona. The San Juan region is a well watered country, and a number of streams empty into the main river from the north. The portions of Colorado, as well as of New Mexico, contiguous to each other, are said to be filled with ruins of compact many-storied pueblos, and of cliff-houses; and they also contain caves sheltering whole villages of one or more storied buildings.[1] Circular watch-towers are also quite common.[2] Much is said about superior workmanship exhibited in the construction of the walls, which are usually thicker than those of more southerly pueblo ruins. But I must recall here the words of Lewis H. Morgan in regard to the stone-work which he investigated on the Rio de las Animas in 1878: —

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[1] It was founded by Governor Don Pedro Rodriguez Cubero, on July 4, 1699. Escalante, *Relacion*, p. 177: "Dia 30 de Junio del año siguiente pasó Cubero con el padre vice-custodio á tomar posesion de estos tres pueblos; dia 4 de Julio dieron la obediencia los Queres del nuevo pueblo, que Cubero nombró Señor San Jose de la Laguna."

[2] Espejo (in *Relacion del Viage*, p. 117) mentions the Navajos under the name of Querechos in 1582, and represents them as being neighbors to the Acomas, and as living in the Sierra de San Matéo, north of that pueblo. The earliest mention of the name of Navajó which I have been able to find dates from 1626. Zárate-Salmeron, *Relaciones de todas las cosas*, par. 113: "La nacion de los Indios Apaches de Nabaju." In regard to their condition in the seventeenth and sixteenth centuries, compare Part I., page 175 *et seq.*

[3] The "Apaches" of the "Perrillo," of the "Xila." See Benavides, *Memorial*, pp. 13 and 53.

"The neatness and general correctness of the masonry is now best seen in the doorways. In the standing walls of the second story, and of the first, where occasionally uncovered, there are to be seen two doorways in each room. . . . The stones used in these doorways are rather smaller than those in other parts of the wall, but prepared in the same manner. . . . I brought away two of these stones, taken from the standing walls of the main building, as samples of the character of the work with respect to size and dressing. . . The upper and lower faces of the stone are substantially, but not exactly, parallel. It also shows one angle, which is substantially, but not exactly, a right angle, and it was so adjusted that the long edge was on the doorway, and short one in the wall of a chamber or apartment, with the right angle at the corner between them. This stone was evidently prepared by fracture, probably with a stone maul, and the regularity of the breakage was doubtless partly due to skill and partly to accident. It shows no marks of the chisel or the drove, or of having been rubbed, and where the square is applied to the sides or angles the rudeness of the stone is perfectly apparent."

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[1] Lewis H. Morgan, *Houses and House Life of the American Aborigines* (Contributions to North American Ethnology, vol. iv. p. 192). W. H. Holmes, *Report on the Ancient Ruins of Southwestern Colorado* (Hayden's U. S. Survey, 1876, p. 383): "Yet there is bountiful evidence that at one time it supported a numerous population: there is scarcely a square mile in the 6,000 examined that does not furnish evidence of previous occupation by a race totally distinct from the nomadic savages who hold it now, and in many ways superior to them." Lieut. Rogers Birnie, *Report on Ruins visited in New Mexico* (vol. vii. of Wheeler's Survey, p. 346): "The evidences that there were former inhabitants in localities now entirely depopulated were numerous, being observed along the Cañon Ceresal, Cañon Largo, Cañon de Chaco, and the San Juan and Las Animas rivers."

[2] See the authorities quoted above, and my letter in the *Fifth Annual Report* to the Institute, p. 59.

Comparing these specimens of the stonework on the Rio de las Animas with a sample of cut sandstone, Mr. Morgan adds: —

"The comparison shows that no instruments of exactness were used in the stone-work of the pueblo, and that exactness was not attempted. But the accuracy of a practised eye and hand, such as their methods afforded, was reached, and this was all they attempted. With stones as rude as that . . . a fair and even respectable stone wall may be laid."[1]

These remarks of the great American ethnologist might be applied with equal justice to many ruins farther south, such as Quivira, Cebollita west of Acoma, and others. Perfection or imperfection in a certain kind of house building is mostly a local feature, brought about by environment, abundance or lack of time, protracted peace or constant insecurity, and by the availability or absence of materials favorabl[illegible]eatness and accuracy in execution.

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[1] *Houses and House Life of the American Aborigines*, p. 179.

From my limited knowledge of the ruins in the extreme north of the pueblo region, I should presume that the compact type, in which one single large communal building sheltered the entire population of a village, prevails more exclusively in that section than anywhere else where pueblo architecture is represented.

Remains of small houses have been frequently noticed in the northwestern parts of New Mexico, and farther north, and Mr. Holmes has given the ground plan of a ruin on the Rio de la Plata, near the Colorado boundary line, which resembles in several ways the villages on the middle course of the Gila, in Arizona, at Casa Grande and its vicinity.[1]

The frequency of round or circular structures has been noticed by investigators, and a kind of double round tower construction has attracted particular attention. The interior is formed by a circular room, and around this is built a ring divided transversely into a number of cells.[2] The circular estufa also occurs, but seems to be distinct from those constructions which, as Mr. F. H. Cushing has ingeniously suggested, may have been first attempts at rearing buildings of stone on the part of village Indians.[3] While the ordinary round towers occur almost everywhere over the pueblo area, this more complex structure seems to be a feature peculiar to the extreme northwest of New Mexico and the adjoining sections of Colorado and Utah. One feels tempted, when perusing the suggestions offered by Mr. F. H. Cushing on the origin of Pueblo architecture, to accept also the conclusion of Morgan, "that the remarkable area within the drainage of the San Juan River and its tributaries has held a prominent place in the first and most ancient development of village Indian life in America."[1] This remark should be limited to the use of stone in the construction of houses, as the round dwellings of the Mandans, made of wood and bark, and the rectangular buildings of wood and hide used by tribes along the Upper Missouri, were as permanently occupied as many of the pueblos of stone and adobe.[2]

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[1] See Plate I. Figure 1, taken from Holmes's *Report on the Ancient Ruins of Southwestern Colorado* (Hayden's Survey, 1876). For the compact pueblos, see Figures 2 and 3.

[2] Holmes, *ut supra*, p. 388 *et seq.*, and plates. Morgan, *Houses and House Life*, p. 191.

[3] *A Study of Pueblo Pottery as illustrative of Zuñi Culture Growth* (Report of Bureau of Ethnology, 1882–83), p. 474.

The artificial objects found are those of a people limited to stone, bone, and wood for the material of its implements and tools. The pottery is described as of better make, and more tastefully decorated, than that of more southerly and particularly of historic pueblos. It is what I believe to be justly called the most ancient types: white decorated with black lines, red with black geometrical designs, corrugated, indented, plain red, and plain black. The coarsely glazed kind, so common farther south, is unknown there. In short, we find in these northern sections the class of pottery which, in Central and Eastern New Mexico, is characteristic of the small houses, and of a very few ancient pueblos; while in the northwest it appears associated with all kinds of ruins, — compact phalansteries, as well as detached family dwellings, round structures, cliff-houses, and villages built in caves or natural rock-shelters. This adds to the probability of the assumption that Northwestern New Mexico, Northeastern Arizona, Southwestern Colorado, and Southeastern Utah, were the regions where the Indian first began to practise and develop the art of constructing stone houses.

I have spoken of the northeastern corner of Arizona; in this I had in view chiefly the cliff-houses and cave dwellings which line the walls of the Tzé-yi, commonly called Cañon de

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[1] *Houses and House Life*, p. 192.

[2] There is not a single pueblo which, as far as its houses are concerned, is three hundred years old, and few of them have been in existence two centuries.

Chelly. In that long and narrow cleft the house dweller was compelled to build his abode above the bottom, and therefore on ledges of rocks and in natural cavities. The pottery brought from the ruins in that cañon has been described to me as quite handsomely decorated; but the list of collections published by the Bureau of Ethnology mentions only the black and white, the corrugated, the indented ware, and some odd plastic decorations. Yet I believe that other shades of colors also appear, and that some of the specimens show much painstaking care in their ornamentation.

In regard to such local perfection in pottery I fully agree with Mr. F. H. Cushing, when he says: "There are to be found about the sites of some ancient pueblos potsherds incredibly abundant and indicating great advancement in decorative art, while near others, architecturally similar, even where evidences of ethnic connection is not wanting, only coarse, crudely moulded and painted fragments are discoverable, and these in limited quantity." After quoting some striking examples, Mr. Cushing continues: "In quality of art quite as much as in that of material this local influence was great. In the neighborhood of ruined pueblos, which occur near mineral deposits furnishing a great variety of pigment material, the decoration of the ceramic remains is so surprisingly and universally elaborate, beautiful, and varied as to lead the observer to regard the people who dwelt there as different from the people who had inhabited towns about the sites of which the sherds show, not only meagre skill and less profuse decorative variety, but almost typical dissimilarity. Yet tradition and analogy, even history in rare instances, may declare that the inhabitants of both sections were of common derivation, if not closely related and contemporaneous."[1]

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[1] *Pueblo Pottery*, p. 494.

Instances of this kind may be found among the present Pueblos also. Taos and Picuries make no pottery, or only of the plainest kind. The pottery of Cia is quite elaborately decorated and handsome, much superior to that of Cochiti and San Felipe, although all three pueblos belong to the same linguistic stock. Among pre-historic ruins I would refer to the great difference in the pottery at Ojo Caliente and that of the other Tehua and Tano pueblos south of San Juan.

I have stated that potsherds with coarsely glazed ornamentation do not occur, at least to my knowledge, in the northwest. That variety appears farther south and southeast, and is more particularly associated with the ruins of historic pueblos. As I have before remarked, the discovery of this glazing process may have been a local incident; but its diffusion among different stocks is a feature of greater importance. That all the ruins in the northwest of the Pueblo region should be accompanied by the same general type of pottery, while farther south that type should become confined almost exclusively to the detached houses, while the compact pueblos adopted the coarsely glazed kind, is quite a significant indication.

I have also been informed by the late Mr. James Stevenson, that strings, thread, and textile fabrics made of yucca fibre have been discovered in the cliff-houses of the Tzé-yi. This is not an isolated find, as will be seen in the course of this Report. Skirts and kilts made of yucca leaves were worn by the Pueblos as late as the beginning of the seventeenth century, perhaps later.[1] The "Pita," as the thread made from Yucca fibre is commonly called, was used by all Pueblo Indians until very lately. In caves in which pueblo houses had been constructed, and in cliff-houses, such easily perishable remains were not so much exposed to decay as in villages constructed in the open air, and they have consequently remained intact for a greater length of time. They are not by any means evidences of a peculiar culture, or even of an industry peculiar to the inhabitants of the places where they were found.

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[1] See Part I., page 158, note 1.

I do not in the least doubt the accuracy of the statement as to the large number of settlements spoken of. But it does not follow that they were all flourishing at the same time. I cannot sufficiently insist upon the many changes of abode customary among the most sedentary Indians in their primitive state. Nor is it certain that the various types of architecture appeared in regular chronological sequence. In some parts of the same region, cliff-houses may have been inhabited at the same time with compact pueblos or cave towns in other districts. The country lacks the elements of support for a large population. That the sedentary Indian changes his location and his plan of living easily, under the pressure of physical causes and of danger from enemies, outweighs any explanations based upon hypothetical climatological changes, or upon geological disturbances supposed to have taken place since the first appearance of man in the country.

Nevertheless, even without any large ancient population, the northwestern corner of the Southwest presents itself as a starting point for the development of a peculiar kind of sedentary life, which expanded into more southerly regions. It was what Mr. Morgan aptly terms a "centre of subsistence"[1] for tribes devoting themselves to agriculture. On poorly irrigated lands a culture might spring up, which, from the nature of the countries over which it afterwards spread, deserves the designation of "Aridian," applied to it by Mr. Cushing.[1] The spread of that culture was in the direction of the south and southeast, not towards the north and west. Physical causes may have been instrumental in compelling the sedentary tribes to move in one direction rather than in the other; but the pressure exercised by nomads upon the house dwellers has had equal, if not greater influence.

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[1] *Indian Migrations,* North American Review, October, 1869, and January, 1870.

One of the most important tasks yet to be performed in the study of the archæology of the Southwest is to determine the northern limit within which ruins of stone or adobe buildings are found. I believe it to be about the 38th degree of latitude, and that it extends along that parallel as far west as the 110th meridian, and eastward to longitude 108°, or perhaps somewhat farther.

According to Mr. Holmes, the most northerly area of settlement of natives who dwelt in stone buildings lies "wholly on the Pacific slope."[2] So does the nearest considerable group of ruins south of it, the famous cluster of ancient pueblos in the Cañon de Chaca, made known by the exploration of General Simpson and the subsequent investigations of Mr. Jackson.[3] Nowhere south of the 36th parallel and east of the 107th meridian in a comparatively small compass is such a number of fine specimens of the compact one-house pueblo met with as along the Chaca Cañon. I refer to their elaborate reports for descriptions of these interesting ruins, and will only add what Morgan has stated in regard to the question of water, which seems to present some difficulties there, as it has in regard to Quivira and the villages on the Médano in southeastern New Mexico: —

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[1] *Preliminary Notes on the Origin, Working Hypothesis, and Primary Researches of the Hemenway Southwestern Archæological Expedition*, Congrès International des Américanistes, Berlin, 1888, pp. 186 and 190.

[2] *Report on the Ancient Ruins of Southwestern Colorado*, p. 383.

[3] Simpson, *Report of an Expedition into the Navajo Country in 1849* (in Senate Ex. Doc. 64, 31st Congress, 1st Session). Jackson, in Hayden's *Report on the Geological Survey of the Territories*, 1876, p. 411 *et seq.*

"The plain between the walls of the cañon was between half a mile and a mile in width near the several pueblos, but the amount of water now passing through it is small. In July, according to Lieutenant Simpson, the running stream was eight feet wide and a foot and a half deep at one of the pueblos; while Mr. Jackson found no running water and the valley entirely dry in the month of May, with the exception of pools of water in places and a reservoir of pure water in the rocks at the top of the bluff. The condition of the region is shown by these two statements. During the rainy season in the summer, which is also the season of the growing crops, there is an abundance of water; while in the dry season it is confined to springs, pools, and reservoirs."[1]

It also should be borne in mind that irrigation is not indispensable to the plants cultivated by the Indian in primitive times, and that therefore the inhabitants of the Chaca had only to provide sufficient water for household purposes.

The pottery at the Chaca ruins is decidedly of the ancient type, and no specimen with glazed ornamentation has ever been found in that vicinity.

The Navajo Indians preserve traditions according to which there seem to have been, in pre-historic times, inhabited pueblos in the country which they now occupy.[2] They also place the origin of their tribe, as well as of the Pueblo Indians, in the San Juan country.[3] But no clue is given as to which tribes lived in the permanent villages spoken of in these traditions. When Mr. Simpson inquired of Nazlé, the well known Jemez Indian, about the ruins of the Chaca, he replied, "that they were built by Montezuma and his people when on their way from the north to the region of the Rio Grande and to Old Mexico."[1] When, a few weeks ago, I interrogated an Indian from Cochiti concerning the same ruins, he confirmed what I had been told years ago; namely, that Push-a-ya had built them, when on his way to the south. After inhabiting the Chaca villages for some time, Pushaya went to Zuñi, and thence into Sonora and Mexico.

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[1] *Houses and House Life*, p. 171.

[2] Washington Matthews, *A Part of the Navajo's Mythology* (American Antiquarian, vol. v. p. 207, July, 1883). *Some Deities and Demons of the Navajos* (American Naturalist, vol. xx. p. 844, October, 1886). *The Gentile System of the Navajo Indians* (Journal of American Folk-lore, vol. iii. p. 89).

[3] See the monographs quoted above.

Push-a-ya is the same mythical personage whom the Tehuas call Pose-ueve and Pose-yemo; the Zuñis, Pushaiankia; and the Jemez probably, Pest-ia So-de. It is needless to add that he is the figure around whom the Montezuma tales have gathered in later years. How far the statement that Pushaya built the pueblos in the Chaca is originally Indian, I am unable to decide.

There are pueblo ruins southwest of the Chaca group, one of which Mr. Lummis has examined, called by the people of San Matéo "Pueblo Alto." He describes it as a rectangular house, measuring "some two hundred feet long north and south, and one hundred feet wide from east to west. It evidently faced west." The walls on the west side are said to be still "thirty, forty, and forty-five feet" high. He adds: "Just in the centre of this side is the distinctive wonder of the whole pueblo, a great tower, square outside, round within, with portions of its fifth story still standing. The walls still hold the crumbling ends of the beams of the successive stories, and the loopholes in the two lower stories are plainly visible." There are at present no traces of water in the vicinity of this ruin; and the pottery appears to be of the same kind as that in the Chaca ruins.[1]

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[1] Simpson (*Report of an Expedition into the Navajo Country*, pp. 77 and 83). The same was told by a Navajo chief named Sandoval, "that the Navajos and all the other Indians were once but one people, and lived in the vicinity of the Silver Mountain; that this mountain is about one hundred miles north of the Chaco ruins; that the Pueblo Indians separated from them (the Navajos), and built towns on the Rio Grande and its tributaries." The same Navajo asserted that the pueblos on the Chaca "were built by Montezuma."

It is a well known fact that the Indian is expert in closing springs. They have been discovered in places where for decades they have been sought in vain; and invariably they have been found to be filled and every trace of them on the surface obliterated in the most skilful manner. Possibly this may be the case at the Pueblo Alto.

South of the ruin just mentioned, and in a direct line about fifteen miles north-northeast of Grant's Station on the Atlantic and Pacific Railroad, lies the settlement of San Matéo. The first attempts at colonization were made there in the latter half of the past century.[2]

San Matéo lies at an altitude of 7,323 feet, and southeast of it, not ten miles distant, rises the extinct volcano called Sierra de San Matéo, or Mount Taylor, and by the Queres of Acoma, Spi-nat. The summit of this mountain cluster is 11,391 feet high. The valley of San Matéo is a narrow basin along the wooded northern slopes of the sierra. Bare hills extend to the north of it, and to the east lies a bleak pass in the direction of the eastern Rio Puerco. Not far from the town, on the road leading to that stream, rises a sharp columnar rock of great height, so steep as to be inaccessible and completely isolated, the Alesna, or "awl," a designation very characteristic of its form. Hidden springs, called by the people "Sumideros," are scattered on both sides of the road both west and east of San Matéo, and he who is not thoroughly acquainted with the country should be very careful not to leave the beaten path. Nothing on the surface (unless it be the carcass of some animal which has perished in the treacherous mud-sinks) indicates impending danger, and the unsuspecting wanderer suddenly finds himself engulfed in liquid mire. The soil at San Matéo is fertile; wood is near at hand, and a diminutive stream, the Arroyo de San Matéo, furnishes the water supply

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[1] Mr. Lummis has published a description and sketches of this ruin in the San Francisco Sunday Chronicle of January 27, 1889, under the title, *Mysterious Ruins, a Visit to the Pueblo Alto*, from which I quote.

[2] Pedro Fermin de Mendinueta, *Merced del Ojo de San Mathéo*, 1768, MS. There were a number of Navajos settled at the time at Cebolleta, and near the San Matéo springs. Unsuccessful attempts to establish a mission among these had been made previously. A church was built, but the mission did not prosper and was given up. Joachin Codallos y Rabal, *Consulta sobre Misiones de Navajo*, 1744, MS. *Despacho del Exmo Sr. Conde de Fuenclara, Virey, etc. En Orden á el Establto y Fundacion de Cuatro Misiones en la Provia de Navajo*, 1746, MS. *Documentos Tocantes á las Misiones de Encinal y de Cebolleta*, MS.

On a bleak slope near the town the ruins of a stone pueblo have been discovered by the Hon. Amado Chavez. The excavations which he caused to be made have revealed a stone building of the pueblo type. The work on the wall, like that on the Chaca and farther north, is well executed. One room was twenty feet by twelve feet, and the tall and perfect walls show traces of a second story. I have uncovered doors in this pueblo not more than three feet high and eighteen inches wide. I copy these statements of Mr. Lummis rather than give my own hasty impressions, gathered during a visit at San Matéo made under most unfavorable circumstances, since it snowed and rained incessantly for two days, and I could only cast a glance at the ruins. Still, that visit satisfied me of the correctness of these statements; it was evidently a compact pueblo of moderate size.

I was greatly surprised, however, at seeing the specimens of pottery which the excavations had yielded. I can safely assert that, in beauty and originality of decoration, they surpass anything which I have seen north, west, and east of it in the Rio Grande valley, and around the Salines. There were among them bowls of indented pottery, one half of their exterior being smooth and handsomely painted and decorated with combinations of the well known symbols of Pueblo Indian worship. On another specimen I noticed handles in the shape of animal heads. Such specimens are quite rare. The shape of the vessels did not differ from those which other ruins and even the pueblos of to-day afford. It was only the decoration, and especially the painting, that attracted my attention. Among the other remains, there was nothing to indicate a culture different from that of the sedentary Indian of the Southwest in general. The beauty of the pottery is therefore only another instance of the influence of environment upon one particular branch of primitive industry. Mr. Lummis speaks of other objects found at this pueblo ruin, — "shell-beads, stone axes, hammers, metates, and arrow-heads." The skeleton of a woman, whose long black hair was still perfect, and a lot of bones, were also taken out of the same room.

Between these ruins and his house Mr. Chavez made an interesting discovery, which Mr. Lummis reports as follows: —

"In crossing a barren plain west of his home at San Matéo, and near some undistinguishable ruins, he noticed that a bit of ground 'gave' under his horse's feet. Dismounting to investigate, he found that a small area seemed elastic and moved up and down when he jumped. Being of an inquiring turn of mind, he took men out to dig there. They removed about a foot of earth over a place some ten feet square, and came to a deep layer of long strips of cedar bark. Below this was a floor of pine logs, then another thick layer of bark, and so on down for several feet. Below the last layer they found a little spring of clear running water, which has resumed running since they dug it out after centuries of enforced idleness. So thorough had the ancient owners been in their work that they had even obliterated the long, shallow gallery through which the waters of the spring used to escape."[1]

The Indian, when he evacuates a place at leisure, "kills" his household pottery by perforating and breaking it. He also "kills" the spring of water that furnished his daily supply by closing its issue. If the spring which Mr. Chavez discovered belonged to the pueblo which he has excavated, it would be an indication that the inhabitants had ample time for its evacuation. Still, Mr. Lummis noticed that the beams had been destroyed by fire.

I know of no tradition connected with the San Matéo ruins; but there is no doubt that they are prehistoric, since only one pueblo, Acoma, existed in that vicinity in the sixteenth century. Many small houses lie both west and east of San Matéo, none of which, however, was I able to investigate. The small-house type of architecture, in isolated buildings as well as in groups forming villages, is quite numerously represented, not only in the San Matéo district, but all along the line of the Atlantic and Pacific Railroad, from Cerros Mohinos on the eastern Rio Puerco, to the Little Colorado River in Arizona. The line of that railroad I now propose to follow as far as the western boundary of New Mexico, for two reasons. First, I have examined personally most of the belt through which it runs. Secondly, in that belt are found the only ruins in Western New Mexico about which some definite historical knowledge can be had, and I wish to dispose of these before turning to the exclusively prehistoric remains in the area covered by this chapter.

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[1] I copy this from the newspaper article before quoted, page 305, note 1.

The plateau or mesa lying between the Rio Grande valley and the Rio Puerco of the east is, as far as I know, destitute of aboriginal remains. It is waterless, bleak, and bare. The banks of the Puerco are sandy, and traces of ruins are said to be rare along its upper course. The stream sinks usually thirty miles above its junction with the Rio Grande, and above that point the volume of water is not always adequate for the needs of a small population.

At Cerros Mohinos the Rio Puerco is still far from being a permanent stream. On its eastern side the soil is exceedingly fertile, and primitive crops grow there without irrigation. It is saturated with oxide or hydroxide of iron. On the west bank volcanic hills rise abruptly and in picturesque clusters. Their height above the river I estimated at over three hundred, probably four hundred feet. They culminate in several protuberances of dark gray trap, and over the ridges leading to these peaks and in the hollows between them are scattered the remains of a small-house village. I counted eleven buildings at distances from one another varying between 4 and 130 meters (11 and 426 feet). The peculiarity of these buildings is that they are quite narrow in proportion to their length. They are built of irregular pieces or blocks of trap, and what remained of the walls seemed to be piled up without the usual binding of adobe mud, as if the structures had been very hastily erected. Still it is possible that, as the houses are much exposed to wind and weather, the crude mortar may have disintegrated, and that I may have overlooked traces of it still remaining. I failed to notice any obsidian about the premises, but flint chips were not uncommon. The pottery was strictly of the older type, — red and black, red outside with black decorations inside on white ground; but not a trace of indented, corrugated, or of glazed potsherds. The situation of this settlement was very favorable for defence; from all sides the approach is steep, and an enemy could only achieve a surprise by creeping into one of the depressions between the summits. Against an Indian foe the place was almost impregnable.

I could not ascertain anything concerning the water supply of this cluster of abodes, and the presumption is against there being springs in trap rock. But the Puerco hugs the eastern side of Cerros closely, and it is not impossible that tanks may have supplied the inhabitants of the cliffs with water in the dry time, while during the rainy season it was furnished by the river. That stream grows remarkably during the months of July, August, and September. Its tendency is to wear away the west side until it strikes some very hard ledge, by which it is deflected again to the east. The water question, therefore, presents no insurmountable obstacle. The houses could not have been more than one story in height, and consequently not much building timber was needed, and there are enough scrubby conifers within reasonable distance to supply the small number of inhabitants with firewood.

On the east side of the Puerco, about a mile and a half from the present Mexican settlement, and on the open plain, are the ruins of a regular pueblo. They are reduced to mere mounds of red earth, and only here and there were the lines of walls of adobe traceable along the surface, showing the ordinary thickness. One mound measured about 75 by 16 meters (245 by 52 feet); another contiguous one, about 22 meters (98 feet) square. It was therefore a regular large-house community. Much obsidian appeared on the surface, and in unusually large fragments; also flint, broken metates, and the prismatic grinders used on them. The pottery was of the coarsely glazed kind, and the colors uncommonly brilliant; shades of chocolate, crimson, brown, and cream-yellow were frequent. Although the decorative patterns were not at all different from those of Pueblo pottery in general, the ware was thinner and appeared to be of a better make than that usually found. The abundance of iron ochre, which, when mixed with the other ingredients of Indian paint, gives the tints of red, brown, black, and intermediate shades, may account for its exceptionally fine appearance. Combined with the still unknown glazing material, it may also have contributed to produce greenish and other uncommon hues shown in the glazed decorative lines.

There is no visible spring in the vicinity, so that the Puerco seems to have been their only resource for water; but, as I have already stated, that cannot be relied upon except at certain seasons. They may have had tanks, but there are no traces of any, neither are there any estufas visible. Fierce winds blow over the bleak plateau from time to time, which rapidly fill up hollows if they are not kept clear from rubbish. There is also a possibility of there being springs, artificially closed. For fertility of soil and for scope of view the situation of the "Pueblito" at Los Cerros is admirable, and wood was not too far distant, so that the inducements for occupation, leaving aside those furnished by compulsion and religious influence, were therefore considerable.

Fifteen miles north of Cerros, on the Mesa Colorada, a large ruin is said to exist, with pottery similar to that on the summits of the latter. There may be still others between the Puerco and the pueblo of Laguna, but I know nothing of them. Their number cannot be very great, as in that section the water supply is limited to a few springs. Around Laguna there are numerous ruins within one mile west and three miles south of the pueblo. I could not ascertain in what connection these remains stood to the modern pueblo, and so turned my attention mostly to the surroundings of the remarkable village of Acoma, the foundation of which antedates the first appearance of Europeans in New Mexico, and where consequently there was some hope of finding a clue to the past of ruins scattered through its neighborhood.

An exceptional situation, a site isolated and impregnable to Indian warfare, is the formidable cliff on which Acoma stands. The fragment of the Queres stock which peopled the rock chanced to drift towards it gradually, and at last came to rest on its summit, where they are known to have resided for the past four centuries, if not longer.[1] Acoma is, therefore, in point of site, not only the most remarkable, but also the most ancient of the New Mexican pueblos of to-day.

The fragments of Acoma tradition which I was able to gather speak of the north as the direction whence that branch of the Queres originally came, and also of the pueblo of Cia on the Jemez River as the place where they separated from the other Queres. One Indian stated to me that at "Teguay-oqué," in the distant north, a Queres Indian by the name of "Hua-toro" told the mother of mankind (who is supposed to live at the bottom of the lagune of Shi-pap-u) that he was going to Acoma to live. He went as far as Cia, and there was joined by his younger brother, called "Ojero" or "Hua Estéva" (?), and together they proceeded to the vicinity of Acoma. I call attention to the Spanish tinge in the above names. This is still more prominent in the rest of the tradition, which states that Huatoro was the first to settle near Acoma; that after him came "Jeronza," then José Popé, both of whom came from Cia; and lastly Catité, from the direction of Santa Ana. In Jeronza we easily recognize Don Domingo Jironza Petriz de Cruzate, the Spanish Governor who issued to the Pueblos their so called land titles in 1689; Popé is the well known medicine-man and instigator of the rebellion of 1680; and Catité was the Queres half-breed from Santo Domingo who led the Queres Indians in the uprising, and for some time afterwards. In the above traditions, consequently, the events of 1680 and later are mingled with a small percentage of recollections of primitive times. Many so called traditions which the Indians volunteer to give must be received with caution. Nevertheless, so far as I am able to judge, the gist of Acoma folk-lore assigns the origin of the tribe to a separation for some cause or other from the tribe of Cia. Thence they drifted to the southwest, across the bleak and unprepossessing valley of the Rio Puerco, and, dividing into two bands, established themselves in pueblos of small size to the right and left of the Cañada de la Cruz, and on the mesa above Acomita, twelve miles north of their present village. How many and which of these pueblos were simultaneously occupied is not known, nor is it positive that thence they moved directly to the cliff. According to a folk-lore tale obtained by Mr. C. P. Lummis, the last settlement of the Acomas preceding the one on the historic rock was made on the so called Mesa Encantada, a towering isolated mesa with vertical sides several hundred feet in height, utterly inaccessible, which stands nearly in the centre of the oblong basin in the southwestern corner of which the "rock of Acoma" is situated. It is one of the most imposing cliffs in that portion of the Southwest, and it is claimed by the Acoma Indians that, while the top of the mesa is to-day utterly beyond reach, it was accessible many centuries ago by an easy trail, and that their forefathers had built a pueblo on it after the manner of their present village. At last dangerous fissures appeared in the rocks on which the trail ascended, and a portion of the tribe retired to the bottom for safety. While some of the inhabitants still occupied the mesa, a part of it fell suddenly, and the unfortunates on the summit, unable to descend, while those below were equally unable to come to their assistance, perished from hunger.

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[1] Acoma existed in 1540; for the year previous Fray Marcos de Nizza had heard of it, under the name of Hacus, from an aged Zuñi Indian, who had fled to the Sobaypuris of the San Pedro River in Arizona years before. It is therefore nearly certain that the pueblo was standing on the top of the cliff at the close of the fifteenth century. All the other pueblos (possibly with the exception of Cia) have more or less changed their position since 1598. Isleta stands very near the place of old Isleta, but that pueblo was abandoned for thirty-seven years, whereas Acoma never was for any length of time.

Whatever may be true in this folk-tale about the rock of Katzim-a, (as the Mesa Encantada is called by the Acomas,) it is certain that its appearance and the amount of detritus accumulated around its base give some color to the legend. Together with the other tales of which I have spoken, it indicates that the Acomas successively occupied several villages between San Matéo and their present location. All the ruins in that section of the country, therefore, do not belong to a period antedating the traditions of still existing Pueblo tribes.

Nine miles northeast of the pueblo of Laguna, and fourteen north of Acoma, the little town of Cubero stands in the corner of a plain that extends along the southern base of the dark mesas above which the Sierra de San Matéo rises as from a pedestal. This plain is fertile, and about fifteen miles long from west to east, and five to six broad. In its northeastern corner the Picacho stands up like a black tusk.

There are a number of ruins on the plain around Cubero, the largest one of which is represented on Plate I. Figure 30. It was a pueblo capable of sheltering a few hundred souls, with pottery of the coarsely glazed kind, some corrugated and indented ware, and a sprinkling of the ancient black and white and red and black. Excavations have revealed cells of the usual size and form, and more pottery. Whether this ruin, which seems to belong to the class of those on the Rio Grande and about the Salines, is claimed by the people of Acoma as one of their former pueblos or not, I am unable to say.

Remains of detached houses, all built of stones, are common on the Cubero plain, and the pottery with which these ruins are covered is of the distinctively ancient type. At the Riconada de San José, on the western extremity of the plain, at the foot of a mesa the eastern front of which bends around in a semicircle, I found fifteen of these dwellings, similar in size and in arrangement to the clusters which I have already described in the vicinity of Socorro and of Abó, and with the same kinds of potsherds. In most cases the walls of the houses could easily be traced. There my attention was for the first time directed to this class of ruins, and my suspicions awakened that they might represent a peculiar type, and were not, as I at first supposed, ancient summer-houses of the inhabitants of communal buildings.

Between the basin of Acoma and the railroad extends a high mesa, mostly covered with scrubby wood, on which are several ruins of small pueblos, only one of which I examined. It may have sheltered as many as one hundred people, and there is hardly any pottery to be found in it. The walls are of stone, and it lies on the brink of a little gorge called the Cañoncito, and the water supply was derived from the bottom of that shallow rocky trench. Not far to the north of this ruin the mesa breaks off abruptly above the fertile bottom of the Agua-azul, or Blue-water Creek, and in that bottom are situated the fields of the Indians of Acoma, at Acomita and the Pueblito, twelve miles in a direct line north of the pueblo. I cannot determine whether the fields were cultivated in 1582, when Espejo visited Acoma. The distance indicated by him, two leagues, does not agree; but since he adds, "on a middle-sized river whose water they hold up to irrigate," I infer that their fields were on some point along the course of the Blue-water.[1] On both sides of the Cañada de la Cruz, towards Laguna, the mesas bear ruins of pueblos, which the Acomas claim for their ancestors. As the size of these ruins is small, it gives color to their tradition, that they drifted into this region in several bands, which at first settled apart from one another, and ultimately consolidated, and established themselves first on the Mesa Encantada, and finally on the cliff of Acoma, where they have remained ever since.

Due south of Acoma I examined an isolated cliff-house, the walls of which were perfect with their coating of yellow clay. The doorway is higher than those of ancient pueblos, with lintels of wood, and the stone-work well executed. Hardly any pottery was found about this ruin, which stands on a rocky shelf above a steep declivity, and in a recess formed by the rocks, which in that vicinity are mostly perpendicular, though somewhat weatherworn. Along the base of these rocks there were caves, and nearly every one of them showed traces of partition walls. Rock paintings in various colors, and very rude carvings on large detached blocks of stone, are to be seen not far from the ruins, which lie about two miles south of Acoma. The Indians of this village of course denied any knowledge of the origin of these buildings, as well as of the pictographs and carvings, except that they were the work of people who had moved southward previous to the coming of their ancestors. This is quite probable as far as the buildings are concerned, but the paintings are remarkably fresh in color, and a boy who guided me to the spot attributed them to the Koshare, or delight-makers, of Acoma.

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[1] *Relacion*, p. 179.

Indeed, the cavity in which they are painted contained plume-sticks of various colors and size, showing that it was a sacrificial place still in actual use.

Small houses are occasionally met with southwest of Acoma, but there seems to be no important ruin in that direction nearer than Cebollita, almost due south of the settlement of San Raphael, or Old Fort Wingate. The last place lies northwest of Acoma, so that Cebollita is due west of that pueblo.

In my mention of the plain of Cubero and of the ruins which are strewn over its surface, I got as far as the Rinconada de San José. Thence on to the northwest, as far as Grant's Station, the plateaux of the San Matéo range hug the railroad track on the north. In the direction of San Matéo there are said to be no ruins except those at the last named settlement, but near the railroad, between McCarthy's and Grant's Stations, are interesting localities. The track follows the curves of a flow of black lava, which has ploughed through the eroded gorges of the sandstone rock without penetrating to any considerable depth. It is of comparatively modern origin, and I have been informed, since my visit to that portion of New Mexico, that ruins of small houses have been discovered somewhere along the course of the stream of lava, partly covered by it. The tale of the "year of fire," current among the Indians of Laguna, seems to have some connection with such statements as these, as there is at least one extinct crater in the neighborhood of that pueblo. If the reported great display of fire is not to be explained as an auroral exhibition of unusual brilliancy, we may suspect it to have been some volcanic eruption, and the presence of relatively recent lava-flows gives still further color to it. But the region previous to the foundation of Laguna was in more or less constant intercourse with the Rio Grande valley, and some record of such a phenomenon might be expected to exist in Spanish documents of the seventeenth century. Yet the same objections prevail as in regard to the earthquake hypothesis about Quivira. There is a possibility that volcanic eruptions may have occurred, of which the Spanish records are lost or undiscovered; and there is also a possibility that they took place previous to the establishment of permanent missions at Acoma and at Zuñi, in 1629.

A few miles northwest of McCarthy's, and a short distance south of the railroad track and of the lava stream, rises an elliptical mesa of small extent, called the Mesita Redonda. Its height above the surrounding level is thirty-five meters (115 feet), of which the uppermost three meters are vertical. The rock is sandstone, the top flat, and mostly overgrown with junipers and cedars. It measures seventy-six meters from west to east, and forty-five transversely. Ten meters from its western brink begins a structure consisting of nineteen rectangular cells, built on three sides, around what may have been a circular watch-tower, the diameter of which is 5.1 meters (nearly thirty feet). The walls are of stone, and their thickness shows nothing unusual. The pottery is of the ancient type, red and black prevailing.

I copy what follows from my journal of May 22, 1882: "Looking down from the Mesita on the south side, I was surprised to see extensive ruins below. After collecting whatever pottery caught my eye, I clambered down through a fissure and surveyed the ruins. It strikes me that in this instance the communal house is smaller, that a greater number of buildings compose the pueblo, and that the rooms are sometimes larger. . . . Among the pottery I also found several specimens which are glossy, but the gloss is less bright, or rather less resinous, than that of the old Rio Grande pottery. The color of these pieces is red. . . . The objects which I found besides were only flakes and some rude mallets, all of lava and trap; obsidian is very scarce, not transparent, and of a pitchy gloss." This is the ruin which, together with the one on the summit of the Mesita Redonda, I have represented on Plate I. Figure 31.

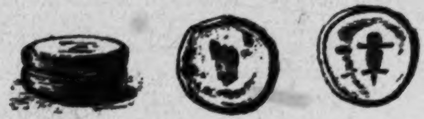
All appearances favor the presumption that the remains on the top of the little butte, and the more extensive ones at its foot, formed but one settlement. Whether all the structures were in use at the same time it is of course not possible to establish; in every pueblo of to-day there are abandoned houses or portions of houses by the side of occupied ones. It may be that the circular edifice was a watch-tower, or it may have been the estufa belonging to the people who occupied the nineteen cells built around it. Below, there is at least one estufa, and also a large round depression, 12.5 meters (41 feet) in diameter, which may have been a tank.

The ground around the Mesita Redonda is fertile; there is water along the lava-flow, and the Blue-water Creek runs close by. It was an exceedingly favorable spot for an aboriginal settlement; for, in addition to its agricultural advantages and the proximity of wood, the Mesita afforded an excellent point for observation, and a place of refuge in case of dire necessity.

It would be tedious to refer in detail to every trace of ancient habitation in the vicinity of McCarthy's and Grant's. The small-house type prevails, in isolated buildings as well as in clusters. Of pueblos proper, beyond the one at the Mesita Redonda, I know nothing, but this does not exclude the possibility of their existence. Still, the country is not, like the Rio Grande valley, the Chaca, the extreme northwest, and the Salines, favorable for the support of numerous aggregations of people. Extensive mesas cut up by steep trenches cover the greatest portions of it, and springs do not abound. I should therefore not be surprised to learn that between San Matéo and the Mesita Redonda no structures of the joint tenement kind have been discovered except those on the plain of Cubero. Also that, south of the ruin at the Mesita, the line of pueblos scattered between Acoma and the Zuñi country are the nearest specimens of that class of ancient architecture.

The country west of Acoma is mostly bleak and arid. Wooded mesas, largely of sandstone and of volcanic rocks, alternate with bare levels. Springs occur in places, and near those springs aboriginal remains have been found. But there are also ruins where no water has been discovered; in such instances, some hidden source may be looked for, or the existence of reservoirs is presumable. It is sometimes difficult to distinguish between a small tank and a large estufa.

My investigations were made from McCarthy's Station, and directed first to the plain of the Ventanas, about ten miles southwest from that place, and separated from the railroad line by wooded mesas. On these mesas I noticed two small houses of the usual kind. On the eastern extremity of the grassy basin called Las Ventanas stands a rock forming a natural arch, and from this freak of nature the vale derives its Spanish appellation. The basin is about two miles long, and bordered by high mesas in the north and east, by a steep ridge in the south-southwest, and in the west by an extensive flow of black lava. I counted at least twenty-five small houses scattered along the border of the basin, on the slope of wooded foothills, whereas the centre appears devoid of ruins. The pottery, while of the old black and white kind, is thicker than usual. Of water I only noticed one pool, to which access is possible through the natural arch mentioned. Ventanas is a lovely valley, well sheltered on all sides, and with fertile soil, and the most interesting ruins stand on the edge of the lava-flow, or malpaïs. A circular depression, 2.6 m. (8 feet) deep in the centre and 16.8 m. (55 feet) in diameter, first attracted my attention. It has a wall of stones, and at each of the four cardinal points a small square cell is built against that wall. Near this structure I saw half a dozen disks of sandstone, shaped like mill-burrs, 0.61 m. (2 feet) across and 0.18 to 0.20 m. (7 to 8 inches) thick, two of which were superposed. They were nearly circular. On the face of one of them the figure of a lizard, or water-salamander, on another the print of a foot, was carved. It is my impression that the depression was a tank, it being too large and deep for an estufa. What the object of the stone disks may have been I cannot imagine. The carvings, now much obliterated and originally not deep, may have been made subsequently to the abandonment of the place. I add a sketch of these enigmatical contrivances.



CARVED DISKS, LAS VENTANAS.

Not far from this supposed tank lies a large rubbish pile, indicating the ruins of some structure, and over two hundred meters northwest of it is the main ruin, — a house built on a slope descending from west to east, and of which the western wall was still standing in 1882, to the height of three meters (10 feet). Its width is 0.81 m. (2 feet 8 inches). Both faces appear straight and vertical. I made the following entry in my Journal, May 24, 1882: "The stones are thin plates of reddish sandstone with their natural cleavage, but the outside face, while not hewn, is still smooth, though not polished. There was much pottery about, mostly of the gray and black and of the corrugated kinds, with some red and black also. The chips are of lava, and there is a very little obsidian of the dark opaque kind."

This ruin appears to have consisted of three tiers, not superposed but built so as to lie one higher than another, successively, on the ascending slope.[1] The partition and side walls on the north, south, and east were about half as thick as those on the west, where the ground is highest. "It looks as if there were three rows, each of one story, and higher than the preceding one, from east to west." The western tier may have been two stories high.

The ruins at Ventanas might have accommodated, small and large buildings included, about six hundred people. Thence on south to Cebollita I noticed no vestiges whatever. The picturesque cañon is wooded, and the bleak level beyond, with its magnificent rim of smooth walls of sandstone several hundred feet high and absolutely perpendicular, is equally devoid of ancient remains. There is a small natural cave in the rocks on the southeast of that plain with partition walls 0.27 m. (11 inches) thick, of stones, and well plastered. The interior of the cavity shows traces of fire.

The ruins at Cebollita deserve closer attention. The spot itself is a beautiful one, well watered, with woods and shrubbery more dense and varied than anywhere else except in the cañones of Santa Clara and of the Jemez region. I noticed chestnut trees. On the southeastern border of the wooded basin forming this vale, hidden from below by thickets of oak, cactus, and other plants, stand the remains of a small pueblo. I doubt whether this pueblo was more than one story high. It presents in fact the appearance of an intermediate form between the large joint-tenement and the detached house villages. What is most remarkable, however, is the beauty of its stone-work. The walls are 0.45 m. (18 inches) in thickness, and made of blocks of red sandstone, very neatly formed and nearly square, almost all of equal size, 0.30 by 0.45 m. (12 by 18 in.), and so carefully worked as to suggest the idea of their having been dressed with some metallic instrument. But it must not be overlooked, that the sandstone consists of thin alternate layers of hard and soft material, and that the effect of wear and tear would be to erode the more friable spaces, leaving the harder seams intact, thus producing a very finely ribbed surface, which might at first glance create the impression of stone-dressing. Not only is the work on each stone extremely well done, but the surface of the walls has an unusually vertical appearance for an Indian construction; but they do not "break joints," and the mortar is plain adobe mud. The cells are small, and the doorways as narrow as in all other ancient pueblos. The outer buildings form a polygonal circumvallation, all the apartments opening into a court, in the centre of which stands an irregular cluster of houses, attached to each other at various angles, and with two, three, and four rows of cells of considerable uniformity in size, somewhat larger than the average chambers of pueblo ruins. No traces of estufas were visible. The circumvallation has only two entrances, the stone-work on the angles of which is surprisingly handsome. The pottery is characteristic of the small houses, and the same as at the Mesita Redonda.

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[1] Compare Figure 495, page 477, "Section illustrating Evolution of Flat Roof and Terrace," in Cushing's *Pueblo Pottery* (Report of Bureau of Ethnology, 1882-83).

The ruins at Cebollita have been thought to be those of a Spanish settlement, but there is no doubt about their Indian origin. They belong to a series of ruins, scattered at irregular distances along an ancient trail leading from Acoma to Zuñi. It is not certain whether this trail, which was in regular use as late as the seventeenth century and is to-day visible in many places, dates from the time when the pueblos now in ruins were built. There are indications that it began to be used after Acoma had been founded, or at least the Acoma tribe established in that vicinity.

I received the impression that the pueblo might have been only a beginning, perhaps never finished, or only inhabited for a short time and then abruptly abandoned; but this is a mere conjecture. The site was certainly well chosen. Close by running water, with fine woods around it, and a fertile, well irrigated valley, it appears like a beautiful oasis in an arid country. For defence it was equally well adapted. On the side where the mountains rise behind the ruin, the circumvallation protects it, following the sinuosities of the rock, and the rise and fall of the ground. On the other side, it is open for a short space, but the rocky shelf on which it stands is cut off abruptly, allowing a free view over the little valley beneath, surrounded by abrupt mesas. Its width is hardly more than one mile, and the only level entrance to it is on the south side. Whether the ruin which I visited is the only one in that valley, or whether, as I have been told, there are two more, I had not time to ascertain.

The Acomas have a name for Cebollita, — Ka-uin-a; but they strenuously denied any knowledge as to who were its builders. That may be true, but I doubt it. More and more we are finding out that the Pueblos conceal much information, traditional and mythological, about the ruins in their vicinity, as well as not unfrequently about ruins situated a considerable distance from their villages. They regard such knowledge as specially sacred, — the privilege of special branches of their ritual organization.

Two roads now lie open to me by which to reach the

Zuñi country and the western boundary of New Mexico. One lies along the track of the Atlantic and Pacific Railroad, and I have followed it step by step almost as far as the frontier of Arizona. But with the exception of the ruins of small houses, isolated as well as in clusters, the vicinity of the railroad track offers to my knowledge not much of archæological interest as far as Fort Wingate. At a place three miles west of the station of Chavez, and not far from the ruins of several detached buildings, I examined a site where a spring, artificially concealed, had been discovered. The issue had first been choked with rubbish, on which a number of entire pieces of earthenware, black and white, had been placed, and the whole covered with a layer of clay filled with flint implements. A wooden idol or fetich was also exhumed, in the shape of a stick with the head of a serpent. When the discoverer asked the Navajos what that idol represented, they replied it was the "charm of the spring." A similar fetich, green, with a head painted red, was found by Mr. Cushing in sacrificial caves at Tule, in Arizona, and I heard of another find of the same nature at Mangus Springs, on the Upper Gila, in Southwestern New Mexico.

Leaving the consideration of the ruins about Fort Wingate for a later part of this chapter, I turn to the other route, which I have travelled but a very short distance. It is that ancient trail, already mentioned, which passes near Cebollita, and connects the pueblo of Acoma with the Zuñi region. We have documentary information about this trail from as early as the year 1540, when Hernando de Alvarado, accompanied by Fray Juan de Padilla, followed it from the village of Ha-ui-co to the "rock of Acuco," as Acoma is called by the chroniclers of Coronado's expedition.[1] The trail passes, after leaving Cebollita, to another "rancho," named Cebolla, and thence south of the famous "Inscription Rock" and of the head-waters of the Zuñi River at Pescado, and also of the Zuñi plain, in an almost straight line, to the Zuñi hot springs, where Haicu is situated. Some distance southeast of the Zuñi basin another trail diverges from it, which leads to Cia, also ancient, well known in the country, and noticed in 1540 by Alvarado. These trails indicate a regular intercourse between the most westerly group of Pueblos in New Mexico and some of the more central clusters at an early date; for three hundred and fifty years ago they were already well traced.

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[1] I refer here to the short but highly valuable document, *Relacion de lo que*

I have stated that Alvarado, when he was sent from Zuñi to Pecos, followed the trail from Hauicu to Acoma. Coronado himself took a more southerly route, but the main body when it marched to the Rio Grande (towards the end of the year 1540) again took the old trail. The latter must therefore have had a number of watering places along its line, distributed at convenient intervals.[1] This would account for the number of ruins along that line; but the fact that the Spaniards marched several times over it without noticing anything but ruins, establishes beyond all doubt that there were

Hernando de Alvarado y Fray Joan de Padilla descubrieron en demanda de la Mar del Sur (Documentos de Indias, vol. iii. p. 511). Muñoz, from whose papers the document was copied, made a marginal note expressing his doubts as to the reliability of the document. He knew nothing of New Mexico, else he would certainly have recognized the importance of this report. In the index of the volume in which it is contained, the name of Alvarado is changed into De Soto. It was included by Buckingham Smith in his *Coleccion de Documentos*, p. 65.

[1] Castañeda, *Cibola*, p. 69. mentions no lack of water on the route followed by Alvarado, or (p. 81) on the route followed by the main body under Tristan de Arellano in December, which was the same, since it led the Spaniards through Acoma. But Coronado, when he took a more southerly direction, was two days and a half without any water (p. 76). I suppose that Coronado took a trail towards the Rito Quemado.

no inhabited pueblos at that time between the Zuñi country and Acoma.

I have learned from informants thoroughly acquainted with the country, and reliable, that ruins similar to those at Cebollita exist near Cebolla, but I am not certain as to intermediate points. Farther west the trail in question passes very near the "Cerro de la Cabra," one of several volcanic cones named collectively, after the well known geologist, Marcou Buttes. It leaves Inscription Rock and its important historic monuments to the right, and passes south of Thunder Mountain, as To-yo-a-lan-a, or the high mesa of Zuñi, is called by the Indians.

Hernando de Alvarado has left a description of the ruins on this trail, which is very accurate except so far as their size is concerned, which he has exaggerated. It appeared to him as if the sites had been abandoned but shortly previous.[1] According to the investigations of Mr. Cushing, they were villages of a branch of the Zuñis, known by the name of Mak-yat-a, or Mat-ya-ta. There is no doubt that this is the Marata of Fray Marcos of Nizza, and according to the story of a fugitive Zuñi Indian told to the monk on the San Pedro River in Arizona, Marata was at war with the remainder of the Zuñi tribe, and was rapidly yielding to the pressure which the "Seven Towns of Cibola" brought to bear upon it.[2] The abandonment of the ruins noticed by Alvarado in 1540 dates, therefore, from the beginning of the sixteenth century, or the close of the fifteenth.

I have not seen any of these ruins, but they are said to display unusual workmanship; I suspect that by this is meant a degree of accuracy similar to that found at Cebollita. The same has been said in regard to the ruins south of Fort Wingate, not far from Nutria, at a place also called "Cebolla."

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[1] *Relacion de lo que Hernando de Alvarado, etc.*, p. 511.

[2] *Descubrimiento de las Siete Ciudades, etc.*, p. 341.

In the eastern ramifications of the Sierra de Zuñi, between San Raphael and the source of the Zuñi River, aboriginal remains are comparatively scarce. There are two pueblos on the summit of the mesa of El Morro, or Inscription Rock. The Zuñis, as Mr. Cushing has ascertained, claim that they were two of their former villages, to which they give the name of Hesho-ta Yasht-ok. They were abandoned previous to the appearance of the Spaniards in New Mexico.

General Simpson has furnished a plan and description of one of these ruins, which description I insert here: —

"These ruins present, in plan, a rectangle two hundred and six by three hundred and seven feet, the sides conforming to the four cardinal points. The apartments seem to have been chiefly upon the contour of the rectangle, the heaps of rubbish within the court indicating that here there had been some also. There appear to have been two ranges of rooms on the north side, and two on the west. The other two sides are in so ruinous a condition as to make the partition walls indistinguishable. On the north side was found traceable a room seven feet four inches by eight and a half feet; and on the east side, one eight and a half by seven feet. There was one circular estufa apparent, thirty-one feet in diameter, just in rear of the middle of the north face. The main walls, which, except for a length of about twenty feet, were indistinguishable, appear from this remnant to have been originally well laid; the facing exposing a compact tabular sandstone varying from three to eight inches in thickness, and the backing a rubble kind of masonry cemented with mud mortar. The style of the masonry, though next, as far as our observation has extended, to that of the pueblos of Chaco, in the beauty of its details is far inferior.

Here, as usual, immense quantities of broken pottery lay scattered around, and of patterns different from any we have hitherto seen. . . . To the north of west, about three hundred yards distant, a deep cañon intervening, on the summit of the same massive rock upon which the inscriptions are found, we could see another ruined pueblo, in plan and size apparently similar to that I have just described."[1]

The situation of the ruins is a very good one for defence and for observation, since they are perched on a plateau over two hundred feet in height, the sides of which are everywhere steep, and absolutely vertical on the north, and nearly so on the east. The pottery is largely of the kind with glazed ornamentation, but the glaze seems to be less coarse than that of historic ruins, and the ornamentation, while after strictly Pueblo Indian patterns, is better executed. Similar pottery accompanies the ruins of Hesho-ta U-thla and Hesho-ta Mimquoshk-kuin, two other Zuñi ruins.

The chief interest of the place consists in the numerous inscriptions with which the faces of a spur projecting eastward from the mesa are covered. In 1849 it was observed that "the greater portion of these inscriptions are in Spanish, with some little sprinkling of what appeared to be an attempt at Latin, and the remainder in hieroglyphics, doubtless of Indian origin."[2] To-day the Spanish inscriptions are in the minority, modern names have been added in profusion, and in some instances the ancient and historically valuable memorials scraped off, in order to secure room for modern ones. Fortunately General Simpson recorded nearly all he could discover, and although the translations given in his report are sometimes defective, and the copies in many cases show that the reading was imperfect, dates and names have been preserved by him that now are no longer to be found.

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[1] *Journal of a Military Reconnoissance*, p. 121 (Senate Ex. Doc., 1850, No. 64).

[2] Ibid., p. 120. For the pottery of Inscription Rock, see Plate No. 64 of the same book.

The oldest inscription which is positively established commemorates the return of Juan de Oñate from his wonderful journey to the Gulf of California. It bears date April 16, 1605.[1]

The next in date, according to General Simpson, is of the year 1619.[2] I could not find it when I copied the inscriptions two years ago. A very well executed inscription commemorates the passage at the Morro of the Governor Don Francisco de Sylvia Nieto in 1629, and another his return from the Zuñi pueblos, after having pacified them again and established the permanent missions.[3] There were, forty years

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[1] General Simpson has 1606. And there are indications that the "5" has been changed into a "6." The inscription reads, "Pasó por aquí el Adelantado Don Ju de Oñate del descubrimiento de la Mar del Sur á 15 de Abril, 1605." It cannot have been 1606, since, according to Zárate-Salmeron, (*Relaciones de todas las cosas*, par. 44.) Oñate left San Gabriel on October 7, 1604, returning again (par. 57) on April 25, 1605. That Father Zárate has made no mistake in the year is proved by the document entitled *Peticion de los Pobladores de la Villa de San Gabriel de la Nueva México, á Don Cristóbal de Oñate tocante al destierro de Juan Lopez Holguin*, 1604, MS. Christóbal de Oñate declares in the *Mandamiento*, on the 2d of December of 1604. "asta tanto el Excelltisimo Sr. Don Jua de Oñate Govr Capitan General y Adelantado su Padre y Sr. benga de la Jornada de la Mar del Sur."

[2] *Military Reconnoissance*, Plate 69. There is no name with the date.

[3] Both are on the northern wall. I give them here from my Journal, with translation: "Aquí [effaced] nador Don Francisco . . anuel de Silva Nieto [effaced] que lo ympucible tiene y á sujeto su braco yndubitable su balor con los carros del Rei nro Señor cosa que solo el puso en este efecto. . . . De Abgosto y seis cientos beinte y nueue que [illegible] á Cvñi pase y la Fé lleue." Translation: "Through here passed the Governor Francis Manuel de Sylva Nieto, whose valor and unflinching arm have overcome the impossible, with the carts of the King our Lord which he alone put in this state. . . . August and six hundred and twenty-nine . . . to Zuñi passed and carried the faith thither."

The other inscription reads: "El Capn Genl de las Pro: del Nuebo México por el Rey nro Sr pasó por aqui de buelta de los Pueblos de Zuñi á los 29 de Julio del año de 1629, y los puso en paz á su pedimto pidiendole su fabor como basallos de su magd y de nuebo dieron la obidiencia todo lo qe hiso con el agasaxe selo y prudencia como tan christianisimo . . . tan par

ago, inscriptions of 1632, 1636, 1641, and 1667. Only those of 1629 and 1636 remain.[1] The passage of Diego de Vargas (1692) is also recorded.[2] The Spanish names and dates of the past century are quite numerous.[3] For the history of the Spanish domination previous to 1680, Inscription Rock affords a certain number of data that are the more valuable since we possess very few documents of that period.

Mr. Cushing wrote to me that, after I had left him at the Morro in 1888, he had discovered the name of Francisco Sanchez Chamuscado. It is not impossible, although I did not see it myself. Chamuscado certainly went to Zuñi with his eight men, and returned, but did not visit Acoma. Hence

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ticular y gallardo soldado de inacabable y loada memo." Translation: "The Captain General of the Provinces of New Mexico for the King our Lord, passed through here on his return from the pueblos of Zuñi on the 29th of July of the year 1629, and put them in peace at their request, begging him for his favor as vassals of his Majesty, and again they pledged obedience; all of which he performed with the zeal, gentleness, and prudence as so Christian . . . particular and gallant soldier of unending . . ."

Don Francisco Manuel de Sylva Nieto was Governor of New Mexico in 1629. Vetancurt, *Crónica*, p. 300. The journey to Zuñi referred to in this inscription was manifestly for the purpose of establishing permanent missions there. According to Vetancurt (*Menologio*, p. 53), Fray Francisco Letrado was the first missionary. The inscriptions are confused in regard to the dates of going and coming, if the first refers to the journey to Zuñi, which is not clear. In the year following, the Zuñis revolted and killed the missionary. Vetancurt (*Menologio*, p. 53) places this event in 1632, but I doubt the correctness of the date.

[1] Of 1636 there is the following: "Pasamos por aquí el Sarjento Mayor y el Capitan Jua de Archuleta y el Aiudante Diego Martin . . . 1636." Simpson completes the rest, which has since been obliterated, "Barba." The rest of the copy given by him is unintelligible. Diego Martin Barba was Secretary to the Governor Francisco Martinez Baeza in 1636. *Autos sobre Quexas contra los Religiosos del Nuevo México*, MS., 1636. The Sargento Mayor mentioned in the inscription was probably Francisco Gomez. The other inscriptions are simply names and dates.

[2] The month and day of the passage of Diego de Vargas are not given. Vargas was at the Morro on the 8th of November and 1st of December, 1692. *Autos de Guerra de la Primera Campaña*, fol. 166 and 206.

[3] Juan de Uribarri, 1701; Juan Paez Hurtado, 1736; Governor Felix Martinez, in 1716; Bishop Martin de Elizaecoechea, 1737; and many others.

it is quite possible that he may have passed Inscription Rock, and been the first to record his presence.[1]

There is another inscription which may also be of 1580, but it is too indistinct to justify the assertion.[2] That Coronado did not, in all likelihood, pass by Inscription Rock, but took a more southerly route, I have already stated; neither did Espejo in 1582. In the year following, it is possible that the latter may have taken the northern trail, when he returned from Zuñi to the Rio Grande.[3] There are indications that Oñate passed near or at the Morro in 1598, but he has left no memorial of his passage.[4]

General Simpson states that there was a spring at Inscription Rock forty years ago,[5] but to-day it has been sought for in vain. Water-holes have been met with, but they are not permanent. Either the spring has disappeared recently, or all surface traces of it have been purposely obliterated.

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[1] That Chamuscabo visited the Zuñi pueblos in 1580 admits of no doubt, although in the *Testimonio Dado* it is called "Cami."

[2] The date is either 11580 or 1580; the name is Pedro Romero. I cannot find it in the *Relacion Breve y Verdadera*, or in Villagran, *Historia de la Nueva México*, fol. 35. The latter gives only seven names besides that of Chamuscado, although it is certain that there were eight.

[3] He does not mention Acoma in his narrative of the return trip.

[4] It may be that the rock near where Villagran at last found water, when he had lost his way in search of Oñate, was the Morro. Oñate's camp was not far from the place. *Historia*, fol. 170:

"Hasta que por gran suerte fuy llegando,
Al pié de vnos peñascos lebantados,
En cuio assiento y puesto vi que estaua
Vn apazible estanque de agua fria."

From the itinerary of Oñate in *Discurso de las Jornadas* (p. 273), it is not quite clear.

[5] *Military Reconnoissance*, page 120, with a plat of the rock: "So, taking him as our guide, we went around to the south face of the wall, along which we continued until we came to an angle, thus: [sketch] where, canopied by some magnificent rocks, and shaded by a few pine trees, the whole forming an exquisite picture, we found a cool and capacious spring." According to Simpson the spring lies in the very corner where the southern wall of the projecting spur touches the main body of the mesa, but I can certify to the fact that there is no longer any trace of it on the surface. Vargas, in 1692, found only water in a tank, and no spring. *Autos de Guerra*, p. 166: "Que es vn peñol muy grande y dilatado á cuyo pie ay vn concauo á manera de vna naranja y en el se rrecoxen las aguas llobedizas."

Between Inscription Rock and Pescado, where the Zuñi River rises, extends a bleak and waterless plain, upon which I know of no remains. The Zuñi mountains sweep around it from southeast to northwest, densely pine-clad. On the south rise the black volcanic cones, with extinct craters, which bear the name of Marcou Buttes. In the west, low hills, clad in the sombre green of scrubby junipers and cedars, close the view. There is no water on this plain, which is about fifteen miles wide, but the western hills contain the sources of the Zuñi River, and in the very gateway where these abundant springs come to the surface stand the two circular, or rather polygonal ruins, called by the Zuñis Heshota Tzinan. Both are prehistoric, and they yield peculiar and handsome pottery.

The course of the Zuñi stream from Pescado to Arizona is dotted with ruins of villages of the Zuñis. Heshota Uthla, another polygonal pueblo, stands a few miles lower down, near the mouth of Nutria Creek. Still farther below is Heshota Thluc-tzinan, a rectangular ruin. Neither of the two is large. The pottery of the first one is similar to that near Inscription Rock. For a ground plan of Heshota Uthla see Plate I. Figure 32. The pottery of the other ruin I have not examined.

At Heshota Uthla Mr. Cushing and I noticed skulls lying on the surface, showing signs of having been fractured by some blunt instrument. Now it may be that these skulls had been disinterred and thrown about afterwards, or possibly the village was surprised and sacked by enemies, and they are the broken and mutilated vestiges of an Indian slaughter.

Three miles from Zuñi, the muddy rivulet of that name emerges from the valley and enters the basin, or Zuñi valley proper. To the left or south rises To-yo-a-lan-a, or Thunder Mountain, over nine hundred feet above the plain, in precipitous crags and vertical walls of variegated sandstone. Ascent is possible on four trails only, one of which can be trodden by horses, though the rider must dismount; the other trails are of frightful dizziness. The mesa is four miles long in a north and south direction, and from one to two miles wide. The top is partly covered with low woods; there is tillable soil, and permanent water in tanks, so that it could afford both room and subsistence for a moderate Indian population; we accordingly find on it the ruins of six small villages.

Mr. S. I. Bigelow, C. E., of San Francisco, has drawn for Mr. Cushing a plan which the latter has published in the "Comptes Rendus" of the International Society of Americanists,[1] presenting the arrangement of the ruins. The houses were not over three stories in height, mostly two, of stone, and showing sometimes the marks of hasty construction. To these ruins the name of "Old Zuñi" has been applied by modern investigators.

That designation is far from correct. The buildings in question date from between the years 1680 and 1692, probably from a few years only previous to the latter date. They were erected by the Zuñis, during the absence of the Spaniards from New Mexico after the Pueblo rebellion, when the Navajos threatened to destroy the tribe. Abandoning their villages on the plain, they retired to the summit of Toyoalana for safety. There Diego de Vargas found them in 1692.[2]

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[1] Congrès. Berlin, 1888, p. 164, Plate IV; a complete map showing the position of the more important ruins near Zuñi is given in Mr. Fewkes's "Journal of American Ethnology and Archæology," vol. i. p. 95.

[2] *Autos de Guerra de la Primera Campaña*, fol. 167 *et seq.* *Auto de Remission*, MS., fol. 243: "En cuya dilatada messa demas de dos leguas se hallan viuir los

It is known that they remained on the mesa for several years, and returned to it in 1703, after having killed four Spaniards in revenge for many excesses committed by the latter at the pueblo.[1] They finally returned to the site of their present village of Hal-onan in the spring of 1705.[2]

The flight of the Zuñis to the Great Mesa after 1680 was not the first instance of that kind in the annals of the tribe. Toyoalana is mentioned in 1540 as a place of refuge to which the Zuñis retired in case of danger.[3] It may be, therefore, that traces of a more ancient temporary occupation may yet be discovered. In 1629, the Zuñi missions had been established, and Fray Francisco Letrado left at one of the pueblos as resident priest. The year after, on the 22d of February, he was killed by the people, who thereupon fled to the summit of Thunder Mountain,[4] where they remained

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naturales de dicha nazion Zuñis de sus zinco pueblos, hayandolos despoblado por los Apaches sus enemigos."

[1] The massacre took place in church, on the 4th of March, 1703. Escalante, *Relacion*, p. 182: "Sobre el Levantamiento de los Zuñis."

[2] Ibid., p. 190. The date was April 8.

[3] *Traslado de las Nuenas y Noticias que Dieron sobre el Descobrimiento de una Cibdad que Llamaron de Cibola situada en la Tierra Nueva* (Doc. de Indias, vol. xix. p. 532): "Y que a xix del mes de Julio pasado, fue quatro leguas de esta ciudad á ver vn Peñol, donde le dixeron que los Yndios desta provincia se hacian fuertes." But the so called "Twin Buttes" of Zuñi lie nearer to Hauicu, from which place the Spaniards started for the trip to the rock, than Thunder Mountain, and they are equally steep and high; but their surface is much smaller, and I never heard that they had been used as a place of refuge. I therefore believe that the "Peñol" mentioned was Thunder Mountain.

[4] The year of the death of Fray Francisco Letrado is given by Vetancurt as 1632 (*Menologio*, p. 53). I believe, however, that it was 1630. That the Zuñis thereupon fled to the summit of the mesa is stated in *Autos sobre restablecer las Misiones en los pueblos de los Zuñis*, 1636, MS. The Custodian of New Mexico says: "Digo qe por quanto los Yndios del Peñol de Caquima de la Prouycia de Çuni qe se abian alsado en tiempo del gouro Don Franco de Silua los quales Yndios." Also: "Y como los Yndios de la prouycia de Zuñi qe se alzaron y mataron á su ministro en tiempo de Dn Franco de Silva, los quales Yndios dejo de paz Don Franco de la Mora que sucedió en el govierno y de poco tiempo á esta parte se ban reduziendo á sus pueblos." This is the event, in all probability at least, to which the Cabildo of Santa Fé referred in 1680 (*Diario de la Retirada*,

until 1635.[1] A residence of several years could not be possible without the construction of durable abodes.

Sacrificial caves in actual use, and spots sacred on other accounts to the Indian, are quite numerous on and about Thunder Mountain, and a host of legends and folk-tales cluster around the towering table rock. It is not strange that such should be the case, but since these tales have as yet been only imperfectly published, out of the vast collection made by Mr. Cushing, I reserve references to them for a future section of my Report. When Coronado made his first entrance into New Mexico, in 1540, Toyoalana was not occupied; the Zuñi villages were all at the foot of the imposing mesa and along the Zuñi River as far as Hauicu, fifteen miles southwest of the Zuñi of to-day.

I will not dwell here on the identification of the Zuñi country with Cibola, and of certain Zuñi pueblos with the "Seven Cities" of Fray Marcos of Nizza.[2] In the Zuñi basin, the following seven ruins are known to have been occupied within historic times.

Matzaki lies at the foot of the northwestern corner of Thunder Mountain. It was a large pueblo in 1540, was probably polygonal, and dwindled down to a mere hamlet until 1680. Between that year and 1692 it was abandoned, the people moving to the mesa. As the Zuñis afterwards

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fol. 71): "Y aunque es verdad que en diferentes ocasiones han intentado el alzamiento y desobediencia los Indios alzados del Nuevo México, ha sido en diferentes pueblos, y naciones, como fué los Zuñis, en el Peñol de Caquima."

[1] *Autos sobre restablecer las Misiones*, MS.: "Desde qe enbio el dho Don Franco de la Mora al mro de campo Thomas de Albizu y subieron los rreligiosos qe yvan con el dho mro de campo al Peñol con algunos soldados los quales Yndios, tengo noticia qe se ban poblando en sus pueblo de un año á esta parte."

[2] I have treated of this matter extensively in my *Contributions to the History of the Southwestern Portion of the United States*, published by the Institute in No. V. of the American Series, and by the late Hemenway Expeditión, in whose archives is also a manuscript bearing the title of *Documentary History of Zuñi*, upon the same subject.

concentrated and settled in one village, Matzaki was never again occupied.[1]

Kiakima is at the foot of the southwestern corner of Thunder Mountain. The ruins lie in a niche and on a ridge formed by débris, and the pueblo does not appear to have been a large one. Here, so Zuñi tradition states, the negro Estevan was killed in 1539. Kiakima shared the fate of Matzaki.[2]

Halona, on the site of the present pueblo, was occupied until after 1680.[3] When the Zuñis descended from the Mesa, they selected the site of Halona for their future residence; but it would appear that the Halona, which antedates the Spanish occupation, lay mostly on the south side of the Zuñi River, while the present village lies exclusively on the north bank. The excavations which Mr. Cushing made on the older site revealed a number of very interesting features, principally in the modes of burial. As I was associated with the late Hemenway Archæological Expedition, of which Mr. Cushing was Director, I do not consider myself justified in anticipating the publications of the results of that enterprise.

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[1] Matzaki is the "Maçaque" of the original of Castañeda's report, which the careless translation of Ternaux-Compans makes "Muzaque," *Cibola*, p. 163: "Le plus grand se nomme Muzaque; les maisons du pays ont ordinairement quatre étages; mais à muzaque il y en a qui en ont jusqu'à sept." It is probably Matzaki, of which the same author speaks (p. 80), and which he describes as "un village, le plus beau le meilleur et le plus grand de la province, on y trouva des maisons de sept étages." As far as I could see, the pueblo was polygonal in shape, but only excavations could establish the true form and original size of the pueblo. Matzaki appears again in the *Obediencia y Vasallaue de los Indios de Aguscobi* (Doc. de Indias, vol. xvi. p. 133) as "Macaquia." In 1680 it is mentioned by Vetancurt in *Crónica*, p. 320, as one of the two "aldeas de visita, que çada qual tenía su pequeña iglesia" of the mission of Alona.

[2] Kiakima also is mentioned in the *Obediencia* above quoted, under the name of "Coaqueria." It was inhabited at the time of the great uprising, but had also dwindled down to a mere hamlet.

[3] "Halonagu" (Halona Kuin) in *Obediencia de Aguscobi*, p. 133. It became the mission of "La Purificacion de la Virgen de Alona." In 1680 the people of the pueblo murdered Fray Juan del Bal, their priest.

Pin-aua, which appears to have been a comparatively small pueblo, lies a short distance to the west-southwest of Halona. It appears to have been abandoned between 1626 and 1680. The ruins indicate quite a compact pueblo.[1]

Hauicu (see Plate I. Figure 34) is an elongated polygon, on a rocky promontory overlooking the plains that stretch out on the south side of the Zuñi River, and about fifteen miles southwest of the present Zuñi. This was the village first seen by Coronado, and which he had to take by storm.[2] Hauicu was occupied till 1672, when the Navajos surprised it, killing the resident missionary, Fray Pedro de Avila y Ayala, on the 7th of October.[3] The ruins of the church, built mostly of adobe, stand at the foot of the eminence on which the pueblo was erected.

Chyan-a-hue, two miles from Hauicu, on a partly wooded mesa, was occupied until after 1630, and abandoned previous to the catastrophe of Hauicu.[4] Here are ruins of a well preserved chapel, built of stone. The pueblo was considerable.

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[1] It is probably the "Aquinsa" of the *Obediencia*. In 1598 that document mentions six villages; in 1604 there were still six left; and the same number existed in 1626, for Fray Zárate-Salmeron says (*Relaciones*, par. 44), "Son 6 pueblos." Benavides (*Memorial*, p. 35) mentions eleven or twelve, with more than ten thousand inhabitants; but this author usually exaggerates, or else he counted the summer villages also. In 1680 there were only four; Pinaua must therefore have been abandoned between 1626 and 1680.

[2] Hauicu is the first Zuñi village the name of which is mentioned. It is the "Ahacus" of Fray Marcos of Nizza. Coronado stormed it in July, 1540. It appears as Aquico in Espejo's *Relacion del Viage*, p. 118. The corrupt relation in Hakluyt omits that name. Oñate in *Obediencia*, p. 133, calls it "Aguscobi." Fray Zárate, *Relaciones* (*ut supra*), calls it "Havico," and says: "El pueblo mayor, y caveza de todos es el pueblo de Cibola que en su lengua se llama Havico, tiene 110 casas," thus identifying it specifically with the Cibola of Coronado.

[3] Vetancurt places the massacre at Hauicu in 1670; but a contemporaneous document fixes the date on the 7th of October, 1672. *Parecer del Fiscal*, September 5, 1676 (MS.): "Y lo que es mas que despues de haber muerto muchos christianos sin reserbar á los Parbulos pasaron á dar muerte al Pe Fr. Pedro de Ayala, ministro en el pueblo de Auuico en el dia 7 de Octubre del año passado de 672."

[4] It was the "Canabi" of the *Obediencia*. Since there was a church at Chyan-

There are doubts concerning the seventh pueblo of the Cibola cluster. Kya-kuina, west of the present Zuñi, may have been that village, but there are also indications pointing to Ketchip-a-uan, near Hauicu. Suffice it to say, that at least seven out of the ruins scattered over the Zuñi range, from Matzaki to the Arizona frontier, cannot lay claim to great antiquity.

There are other ruins of Zuñi origin, which should not be classified with the prehistoric ones. During the past century the Zuñi tribe again spread out in smaller pueblos in different directions. Most of these were summer villages; still the houses were so durably constructed as to leave débris which to the inexperienced appear like ancient vestiges. The pottery of all these ruins is characteristic Zuñi pottery, and there are glazed fragments among it; also corrugated and indented ware, black and white, and red and black. Other remains are so closely connected with the present ethnology of Zuñi as to render detailed reference to them superfluous.

In a west direction, there is a ruin at the Ojos Bonitos, the ground plan of which I have given on Plate I. Figure 35. The ruins are much disfigured, and they merely show that it was a pueblo of the compact kind. In the Cañada del Venado, on bare rocks, are numerous pictographs, and on the wooded ridges that border the gorge, isolated small houses accompanied by characteristic potsherds occur frequently.

Not far from the Ojos Bonitos lies the small-house village represented in Plate I. Figure 33. It is very characteristic, as well as its pottery. Several circular depressions are found

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ahue, of which I have satisfied myself by ocular inspection of the ruins, the pueblo cannot have been abandoned previous to 1629; probably only after 1636. The chapel was small, and its walls are still standing.

near the houses. Some of the latter have as many as sixteen rooms, and none can have been higher than one story. I counted eight dwellings, and three circular depressions. One of these last may have been a tank, the others were probably estufas.

Turning now to the region north of the Zuñi River, and within the boundaries of New Mexico, I ascend the Nutria Creek as far as Nutria, where the village of "To-y-a" represents probably the only specimen of a polygonal one-house pueblo which is still inhabited, although not permanently. A few miles from it lie the important ruins of Heshota Im-kuosh-kuin, or Mim-kuosh-kuin, in a very fertile and well irrigated valley, surrounded by woods and in an admirable situation for Indian agricultural purposes. It is also a polygon and similar to Heshota Uthla in plan, only larger. The pottery shows the handsome shades and nice workmanship of that at Inscription Rock, with glazed decorations. It was, like Toya, a Zuñi village, but abandoned previous to the sixteenth century, as far as I was able to ascertain from Mr. Cushing. Near this ruin, and between it and the Mormon settlements at Rama, others occur; also at Cebolla, where the stone walls show a degree of workmanship equal to that displayed at Cebollita near Acoma. The form of the ruins is said to be polygonal also.

The prevalence of this type of pueblo architecture in the Zuñi region is rather surprising. Including the historic Cibola villages, I know of at least ten ruins of this class on the range which the Zuñi tribe claims to have once held. This kind of construction implies a circumvallation of a polygonal shape, with one or more gateways. The circumvallation forms a building with a number of cells, the entrances to which were from the inside, while the outer front was probably not otherwise perforated than with loopholes. This polygonal house enclosed an open space containing estufas, and sometimes a cluster of other buildings, so that the whole consists of a central group surrounded by a ring of many-storied edifices, forming a defensive wall. The idea is fundamentally the same as that of the one-house pueblo with its central square or courtyard, but it denotes progress in the adoption of a form nearly round, and therefore better adapted to purposes of defence. The round pueblo required always a level, while the rectangular type, easily decomposed into isolated buildings, could be preserved, after breaking up the original large house into several, by separating the angles. The prevalence of the polygonal pueblo in the Zuñi country must therefore be ascribed to other than physical influences, and it seems as if a protracted state of insecurity might be regarded as the immediate cause of it. The Navajos (whom the Zuñis call A-pa-chu, whence the name of Apaches) from time immemorial have been a constant threat to them, and it is not impossible that the neighborhood of these warlike hordes determined the adoption of an architecture which, while preserving the accommodations required by the social organization of the people, at the same time presented an improved defensive plan.

In addition to the specimens of small houses mentioned and figured in these pages, the Zuñi country contains a number of others which are so similar that I need enter into no detail concerning them. According to Zuñi tradition, they dwelt in such villages previous to resorting to the joint-tenement pueblo houses. Certain it is, also, that when the Spaniards came into New Mexico they found no small houses inhabited, unless the Jumanos dwelt in buildings of that class, and that the Pueblo Indians all occupied large communal dwellings.

Of the interesting ruins south of Zuñi, near the salt lagunes and the Carrizo, I can only speak from hearsay. They are said to be in a fair state of preservation, and belong to the specifically Pueblo type. The salt deposits were known to the Spaniards at an early day, and were certainly visited by them in 1598.[1] The fact that the vicinity of these Salines was uninhabited at the time shows that the abandonment of the ruins antedates 1540, if not the sixteenth century.

Interesting ruins are visible on the road leading from Manuelito on the Atlantic and Pacific Railroad to Zuñi. They partly crown the rocky sides of a cañon, and the walls, which are still visible to the height of at least two stories, display very good workmanship. Loopholes and small windows appear in them, and there are also natural cavities partitioned for dwelling.

The same perfection in the stone-work is said to be displayed in the ruins at Navajo Springs, farther northwest, which I have not visited.

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[1] The earliest information about these Salines was obtained by Captain Melchor Diaz, whom Don Antonio de Mendoza sent, after the return of Fray Marcos of Nizza, to inquire into the truth of the friar's statements. Diaz left Culiacan on November 17, 1539, with only fifteen men, on horseback; but the cold was so intense that, after penetrating to Southern Arizona, he was obliged to retrace his steps. Among the many matters of interest which he heard concerning Cibola, he learned that the people of the "Seven Towns" used salt, which they drew from a lake situated two days' journey from Cibola. Antonio de Mendoza, *Deuxième Lettre à l'Empereur Charles V.* (Appendix to *Cibola*, p. 295). In a direct line the distance is about forty-five miles, so that the information was quite accurate. The next statement is from Villagran (*Historia*, fol. 164). While Oñate was at Zuñi, in November, 1598, he sent Captain Farfan to explore the salt lakes.

"Que fuesse á descubrir ciertas salinas,
De que grande noticia se tenia
Y poniendo por obra aquel mandato,
Con presta diligencia, y buen cuidado.
En brebe dio la buelta y dixo dellas
Que eran tan caudalosas y tan grandes,
Que por espacio de vna legua larga,
Mostraua toda aquella sal, de gruesso.
Vna muy larga pica bien tendida."

Before leaving the Zuñi country, I must allude to the ruins in the neighborhood of Fort Wingate. What I examined of these belong exclusively to the small-house class. North of the post, on the northern banks of the Rio Puerco, are the vestiges of a settlement. The houses lie at considerable distances from each other, and the number of circular depressions in their vicinity is quite considerable. One of these was doubtless an artificial tank, the others may have been estufas. The largest of the buildings, the one close to which the tank was constructed, contains as many as forty-two cells on the ground-plan. The walls were of sandstone, and, as far as discernible, 0.25 m. (10 inches) thick. Much pottery accompanied these ruins, which was corrugated, indented, and the kind of painted ware peculiar to small-house ruins.

At the foot of the bald ridge over which these ruins are scattered, the traces of an old irrigating ditch were visible, its width nowhere exceeding two meters (6½ feet). This ditch runs parallel to the Eastern Rio Puerco, one of the confluents of the Little Colorado. It may be that the ditch belonged to the ancient settlement, but this is not absolutely certain, as the Navajo Indians irrigate to-day, and it was stated in 1630 that, while their habitations were the same perishable structures in which they dwell at present, they raised fair crops.[1] I therefore leave the question undecided. My friend Dr. Matthews will doubtlessly, sooner or later, be able to gather reliable information on the subject from the Navajos themselves.

There are a few small houses scattered through and about Horse-Pen Valley, near Fort Wingate. In the same valley a round tower, partly ruined, was shown to me by Dr. Matthews. One side of the structure was completely broken down, but on the other half of the circumference two and three stories were still standing. The diameter of the structure inside was 4.3 meters (14 feet); the walls of the first story (which was 2.7 meters or 7 feet high) were 1.07 meters (42 inches) thick. The second story measured eight feet in height, and the thickness of its walls only 0.45 m. (18 inches). The uppermost tier I could not reach, but estimated its thickness at 0.30 m. (one foot), so that the walls of the tower were built in steps or terraces receding from below upwards, like the stories of pueblo houses. The stone-work is fairly executed, and the ceiling of the second story was still partly discernible in the spring of 1883. A transverse beam supported the free ends of a number of poles, like spokes of a wheel resting loose on the axle. The other ends were of course imbedded in the walls, and it is presumable that the poles supported the usual layers of brush and earth. I had examined two-storied watch-towers of stone in the vicinity of Zuñi which were square instead of round, and their analogy with this round structure in size was striking. But I failed to find in the latter the contrivance for ascending to the upper tier which the square ones exhibit, — a stone staircase built outside from the ground, leading to a small doorway in the upper story. At Horse-Pen Valley there were some projecting stones in the walls, which might have facilitated ascent from the outside, but they were at irregular distances.

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[1] Benavides, *Memorial*, p. 59: "Y estos de Nauajo son muy grandes labradores, que esso significa Nauajo, sementeras grandes."

Such tower-like constructions are not always to be looked upon as strictly military. Square towers are common around Zuñi, built for guarding the crops, and not for the use of a small garrison. The one at Horse-Pen Valley appears to have belonged to this class. It stands in a beautiful situation, for the vale is fertile, and there is permanent water in sufficient quantity for the household purposes of a small

Indian population. Nevertheless, every one of the small buildings which I examined, one of which had sixteen cells, had contiguous to it a circular depression, which the Navajos say was a tank. They are rather small for such a purpose, measuring only from three to five meters across (10 to 16 feet); I therefore suspect them to have been estufas. The ground was wet in each of these depressions, and one of them had a wall around it, which, like the walls of the adjacent house, was 0.28 m. (11 inches) in thickness.

The houses are much scattered, and small square constructions are quite numerous, so that the whole has the appearance of a small farming community. If there were in the neighborhood any ruins of larger pueblos with the same distinctive kind of pottery, I should unhesitatingly admit that the ruins at Horse-Pen Valley are those of summer ranches of their inhabitants. As it is, I know of none, and must therefore abandon all explanations based upon such a theory. There are no traditions known to me concerning the origin of the ruins; they are not only prehistoric, but beyond the scope of tradition.

Cliff-houses, and more round towers, are said to exist north and west of Fort Wingate, but they were too remote for me to visit. The remarkable study of the Zuñis made by Mr. Cushing, and the equally thorough investigations of Dr. Matthews among the Navajos, relieve me from the necessity of giving more than a superficial notice of the antiquities in those portions of the Southwest.

South of the Zuñi country extends a region comparatively unknown, and to which I can but briefly refer from hearsay. There are probably ruins around the forbidding mountain chains of the Escudilla and Sierra del Datil,[1] and there are certainly ruins along the course of the San Francisco, and near Clifton in Arizona. There are also ruins farther north, about the Rito Quemado, but the plains of San Agustin seem to be devoid of aboriginal remains. East of this break the Magdalena Mountains hug the Rio Grande valley, and it is well known that pueblos of considerable size are found there, within forty miles west of Socorro, one of which was mentioned as early as 1692 by Diego de Vargas.[1] The accounts which I received concerning these ruins are too indefinite to warrant their reproduction here. Specimens of pottery coming from them are curious in shape, but still typical Pueblo pottery. Of the builders I know nothing.

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[1] The Escudilla is properly in Arizona; its height above the sea level is 10,691 feet; the elevation of the western peak of the Datil is 9,440 feet.

The same may be said of ruins in that wild and intricate mountain region bordering the course of the Gila on the north, and called by the collective name of Mogollones. That it contains ancient remains is well known, but beyond this, and an occasional notice of cave dwellings and of cliff-houses, I am not informed. The last two types of building attract more attention than the common pueblo or the small-house village, because they are better preserved, and the objects which they contain are also in a better condition.

I have previously stated that the latitude of San Marcial (or about 33½°) is the southern limit to which the joint-tenement or Pueblo house architecture extended on the Rio Grande and east of it. It seems that this holds good also for the western portions of the territory, for on the few confluents of the Rio Grande, known as the Cañada Alamosa, Palomas, and Cuchillo Negro, the ruins, from concurrent reports, appear to be small buildings, either scattered or in clusters. The same occurs on the Upper Rio Gila, north of the thirty-third parallel. Into the region of the sources of the Gila I penetrated in the winter of 1883–84 from the southeast, taking the station of Rincon (on the Atchison, Topeka, and Santa Fé road) for my point of departure. Before going to the Gila and Mimbres streams, however, I cast a glance at the Rio Grande valley about Rincon and farther south, and I have purposely delayed until now giving an account of the remains which I noticed there. I repeat here what I wrote to the Institute on the 2d of February, 1884, about the ruins at the Cerro de San Diego: "My examination of the ruins at the foot of the Cerro San Diego, nine miles south of Rincon, has given ground plans of small houses of rubble, without connection of the groups or single buildings by contiguous walls of enclosures. The pottery not only shows bright colors, but a much more carefully executed pattern, often composed of fine lines forming geometrical designs of great regularity, indented and corrugated pottery, painted like that of the ruins at Fort Apache in Eastern Arizona, flint and basalt chips, and metates of lava, comprise what industrial products remain on the surface."[1]

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[1] Escalante, *Relacion*, p. 137: "Anduvo cinco leguas costeando la sierra de la Magdalena, en cuya falda occidental, están ruinas de un pueblo antiguo grande. Medio cuarto [ó uno] de legua, al Surueste de dichas ruinas, está entre unos carrizales altos, un venero de agua mediano."

The village was small, and it stands on a low promontory below the picturesque cliff to which the name of San Diego was given as early as the seventeenth century.[2] The valley of the Rio Grande, fertile, partially wooded, but subject to overflow, stretches to the foot of the ruins, and the site was well selected. I have been informed that there are ruins as far south as Fort Selden, and even as Doña Ana, from which the distance to El Paso del Norte is about fifty miles; but I have not been able to obtain any information concerning the existence of ancient remains near Las Cruces, Mesilla, and as far as the mouth of the Pass. The Rio Grande bottom is quite fertile, but trees, except cottonwood groves, are scarce and distant. On the west side perfectly bleak plains expand, above which in the distance project isolated cones. To the east, the arid and gravelly slopes rise in dismal perspective to the foot of mountain chains equally arid, and so rugged that their picturesque profiles become an ornament to the otherwise dreary landscape.

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[1] *Fifth Annual Report*, p. 89.

[2] *Autos de Guerra de la Segunda Campaña*, fol. 10.

If subsequent investigations confirm the absence of aboriginal remains in the Rio Grande valley between Doña Ana and the "Pass of the North," it becomes an interesting question why that bottom, so fertile and open, should have been unoccupied by the sedentary Indians. One reason may be that the river bottoms which are favorable for agriculture were too densely wooded in former times; or that, on account of the periodical droughts and consequent fluctuations in the volume of water of the river, tribes who irrigated found it unprofitable to settle; or it may be that the openness of the country afforded insufficient protection against surprises by enemies. It is certain, however, that not only Pueblo architecture, but also the small-house type, seem to be lacking on the stretch of less than fifty miles between the vicinity of Doña Ana and the narrow pass from which El Paso derives its name.

In 1726 it is stated that at a place thirteen leagues (35 miles) south of San Diego, the Mansos lived until 1659, when Fray Garcia de San Francisco persuaded them to remove to El Paso del Norte.[1] Thirty-five miles south of San Diego would be in the Mesilla valley, somewhere near the present station of Mezquite. It is well to remember this, as the finding of Indian remains there need not be taken as evidence of a former establishment of sedentary natives. The Mansos were less nomadic than the Apaches, but they still did not dwell in permanent abodes. It is doubtful whether they made pottery previous to their colonization by the church at El Paso del Norte.

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[1] Rivera, *Diario y Derrotero*, p. 26: "Haziendo alto en vn parage, junto al Rio que llaman Ráncheria; por haver sido la mas frequente habitacion de los Yndios Mansos, antes de estar reducidos á pueblo." See Part I., page 165.

I have not heard of any vestiges beyond the Cordillera that skirts the Rio Grande on the east. But near Rincon, in the approaches to the Perrillo, or the ascent to the plateau of the Jornada del Muerto, I found traces of former habitations; they are, however, scant and much obliterated. In the Jornada proper nothing is to be found, for there is no water, but I have heard of vestiges in the Sierra de San Andrés, about thirty miles east of the river. On the west side of the Rio Grande, barren levels expand as far as the foot of Cook's Peak. Beyond that chain flows the Rio Mimbres, a stream the head-waters of which lie near those of the Gila, but which runs southwards, while the Gila turns to the west. The Mimbres belongs to an interesting inland drainage system, which is independent both of that of the Pacific and of the Gulf of Mexico.

In close proximity, therefore, on a three-fold water-shed, between the parallels of 33° and 34° and along the 108th meridian, are the sources of the Gila, which send their waters to the Gulf of California; the numerous rivulets flowing towards the Rio Grande between Fort Craig and Rincon opposite the Jornado del Muerto, which belong to the drainage system of the Gulf of Mexico; and the Mimbres, emptying into the inland basin, without visible outlet, of which the northern lagunes of Mexico, the lagunes of Palomas, Guzman, and Santa Maria, form the centre.

The pottery of the ruins along the Mimbres, as well as on the Upper Gila, is like that which I found on the Rio Grande at San Diego. It is different from any on that river higher up, different from the pottery of the Salines, and also different from the potsherds accompanying ruins in the northwest, except in some localities, such as San Matéo, and perhaps Tzé-yi. It has a marked resemblance to potsherds from Eastern Arizona, and especially to those from the Sierra Madre and Casas Grandes in Chihuahua. Although the architecture along the Mimbres is of a different type from that at San Matéo, Fort Apache, and in Chihuahua, the pottery is similar; and although better in material and more elaborately decorated, with a greater variety of shades, the same fundamental patterns underlie that decoration as in Utah, in Colorado, in Northern New Mexico, in the Rio Grande valley, in short, everywhere where pueblos are found. It is Pueblo pottery in the widest sense of the term, as well as in its narrowest acceptance. The basis for the decoration is always the well known religious symbols of Pueblo ritual, only more elaborately and tastefully combined and modified. We recognize the Clouds, the Earth, Rain, Lightning, the double line of "life," but there is a progress in execution as well as in combination of the figures. The corrugated and indented ware also has undergone a transformation. The crude concentric ribs are less abundant, nicely indented surfaces take their place, and these are painted, not unfrequently, as at Fort Apache, with symbolic designs, applied to the indentations and corrugations without regard to the pattern of the latter. There is in this feature something very characteristic of Indian art before the sixteenth century. It shows that it had not everywhere attained the conception of harmony between the plastic design and color. At San Matéo, however, as well as at

Casas Grandes, two localities separated by five degrees of latitude, the painting was adapted to the plastic ornamentation, while at intermediate points I did not find any evidence of this. This does not, of course, exclude the possibility of the existence of such specimens, but they must be rare, and it shows how much perfection or imperfection in Indian art is a purely local feature. The crudest specimens of this class are found in the northwest, and they display a certain original and peculiar development among the ancient Tehua ruins north of Santa Fé. Along the Rio Grande, and east of it, the types become primitive again, as if that class of work had been neglected, or superseded by the coarsely glazed variety. A gradual and steady development, however, shows itself in the direction of the south through Western New Mexico, spreading out both to the southeast as far as the Rio Grande near Rincon, and thence to El Paso, and to the southwest into Arizona.

Other manufactured objects do not seem to display the same change. The stone and flint implements are neither better nor worse than any in the north; stone axes from Northern New Mexico even show a degree of finish which I have looked for in vain in Chihuahua. It is the material which, in the case of this implement, has determined the improvement. The actinolite accessible to the Northern Tehuas, and especially to the Taos, takes a beautiful polish.[1] But southern stone axes display one peculiarity. The groove is cut only on three sides, while the bottom of the axe is flat, and sometimes polished. The stone axe of Southwestern New Mexico, Arizona, and Northwestern Chihuahua, has more the shape of a celt, and in this respect it approaches the same kind of implement from Central Mexico and Central America.[1]

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[1] Beautiful colored plates representing axes and hammers from Northern New Mexico are contained in volume vii. of *Report upon U. S. Geographical Surveys west of the 100th Meridian* (Wheeler), Plates XVII., XVIII., and XIX.

Only near Casas Grandes do we find a decided improvement in the form of the hand-mills or Metates. Those on the Mimbres and its vicinity are as rude as any farther north. The same may be said of mortars and pestles, which are sometimes decorated with attempts at the carving of animal forms. Trinkets and fetiches seem to be the same everywhere as far as latitude 29°. Of textile fabrics, cotton has not been found on the Upper Gila, as far as I know, but the yucca has played a great *rôle* in dress and in fictile work. Mats of yucca, plaited kilts of the same material, resembling those described as worn by the Zuñis three centuries ago, sandals and yucca thread (Pita), have been found in sheltered ruins. In a cave village on the Upper Gila I noticed a piece of rabbit fur twisted around a core of yucca threads. Of such strips the rabbit mantles of the Moquis, which Fray Marcos heard of and was of course unable to understand, were made and are made at this day.[2]

Turquois beads and ear-pendants are not unfrequently met with, associated with shell beads. Further on I shall mention interesting finds of this nature at Casas Grandes. But however much I searched and inquired for metallic implements or trinkets, I was unable to hear of any, at least in the ruins around the inland drainage region. In Central Arizona copper objects have been found on the upper and lower Rio Salado, as will appear in the course of this report.

It is quite strange that no traces of copper implements should be met with in the Mimbres region, for native copper occurs in the mines of Santa Rita, near Silver City, and at other localities. But it is not nearly so common as in the Lake Superior copper region, and masses of it do not crop out as they do there. The Indian would have been compelled to mine, and it was not worth his while to do this so long as he had on the surface rocks with which he had been acquainted from time immemorial. The absence of copper tools is not to be regarded so much as a mark of lack of mechanical skill, as a result of the peculiar conditions in which the raw material occurs.

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[1] The celt is the usual form of the axe in Central and Southern Mexico. There have been found, however, some highly ornamented axes with notches and grooves. A handsome specimen is represented on page 64 of *Mexico á Través de los Siglos*, vol i. In 1881 I brought a number of stone celts from Mexico.

[2] See my *Contributions to the History of the Southwestern Portion of the United States*, p. 140.

I have heard of burial places, and have seen on the Mimbres localities where skeletons had been exhumed. I also saw a skull which was flattened at the occiput. Mr. Cushing has called attention to the probability of such artificial distortions being due to the mode of burial, and not always to a peculiar method of shaping the skull during the lifetime of the individual. The skeletons found on the Mimbres lay extended, and at a small depth below the surface. They were not protected by any solid encasing whatever. The pressure upon the occiput, incident upon their lying on the ground, may have been sufficient to deform the skull.

I have been thus explicit in regard to the more perishable remains of the Mimbres and Upper Gila region, because, as will soon be seen, we meet there for the first time in New Mexico a kind of architecture distinct, at least as a variety, from anything found north of the 34th degree of latitude. I have also extended my remarks to the artificial products of regions lying outside of New Mexico, both to the south and the west. In thus anticipating what geographically belongs to distant parts of the Southwest, I desired to indicate beforehand certain analogies in ethnological details.

The ground plans given on Plate I., Figures 60 to 69 inclusive, give an idea of the arrangement and relative size of the most prominent of the Mimbres and Upper Gila ruins which I have investigated. From information received, I conclude that whatever ruins occur in the Sierra Mimbres proper, in the Mogollones, and along the watercourses emptying into the Rio Grande, present the same type, which I have described as follows: —

"Not only are the single buildings connected with enclosures, but these enclosures themselves so meet each other that the settlement forms a checker-board of irregularly alternating houses and courts. The houses are easily discernible from the fact of little rubbish mounds having accumulated on their site, around which the foundations of rubble still appear, or in which parts of the walls are yet to be found. The courts sometimes appear not only as much larger spaces, but they are free from rubbish, and thus seem flat, or even depressed. These pueblos are thus virtually closed on all sides, either by the walls of a house or by those of yards; and they are very defensible, as there are but one or two entrances, and these either through a narrow passage between two buildings, or through a still narrower one, with re-entering angles, between two court walls. Each village contains one or more open spaces of large size; but they are irregularly located, the tendency being to cut up the whole plat into as many small squares as possible."[1]

When I wrote this, I had not yet visited Southwestern New Mexico, and I was not acquainted with the character of the ruins there, and consequently not aware that, while the type above described is manifestly a combination of small houses and courts in one group, I should find on the Mimbres and Upper Gila an intermediate form, representing that combination on a more imperfect scale. The dwellings are all small, and only one story in height, but the rooms are usually larger than in northern ruins, measuring on an average 4.5 by 4 meters (14¾ by 13 feet). On the Gila of Arizona, the Upper Salado, and the Lower Verde, the average for the same type of buildings was 5.1 by 4.5 meters. I will repeat here what I wrote to the Institute in 1884, concerning the ruins on the Mimbres and the Upper Gila. The reason why I prefer to transcribe these statements rather than present the same facts in a new form is, that what follows was written under fresh impressions of the remains and of their surroundings, whereas seven years have elapsed since, during which I have passed only once through the country, and hurriedly at that.

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[1] *Fifth Annual Report*, p. 63.

"West of the Rio Grande, and opposite the mountain chains skirting the Jornada del Muerto, the ground rises gradually, in broken mesas crossed by vales with streamlets, to the base of the Sierra Mimbres, recently called the 'Black Range.' These mountains run from north to south, are heavily timbered, and their slopes on both sides bear ruins of the detached family-house type, with enclosures or courts, remains of round towers, and circular tanks. On the east flank these vestiges follow the course of the numerous arroyos, like the Cañada Alamosa (which, rising in the Sierra Luera, a northeastern spur of the Mimbres, passing between the Negrita and Southern San Matéo ranges,[1] empties into the Rio Grande in the latitude of the Ojo del Muerto), the Cuchillo Negro, the Rio Palomas, and the Rio Frio; the last three descending directly from the east flank of the Black Range. The ruins are situated on the upper course of the arroyos, and they disappear where the latter sink, to re-

[1] There are two mountain ranges in New Mexico which bear this name. The one to which I refer here lies west of Fort Craig and San Marcial, and appears like a continuation of the Magdalena Mountains; its altitude is given at 10,209 feet.

appear again on a narrow strip along the river itself. This I have gathered from numerous reports, as well as from a few personal observations.

"The western slope of the Black Range is very steep. It descends abruptly into the fine valley of the Rio Mimbres. That stream, rising south of the western Sierra Blanca of New Mexico, runs thence with frequent interruptions through sand and gravel accumulations, in a deep valley, as far as twelve miles south of Brockmann's Mills, where it sinks, except in the rainy season; its dry bed continuing, past Deming and Carizalillo Springs, to the Laguna Palomas in Mexico. Its course is due north and south, and it is the only northern feeder of an inland water basin lying between the Sierra Madre and the Rio Grande. This basin, situated in the State of Chihuahua, has no outlet. Several lagunes, like the Palomas and Guzman Blanca, are scattered over its surface; the eastern flank of the Sierra Madre drains into it from the west, the Rio Casas Grandes from the south.

"Towards this centre of drainage the aboriginal villages on the Rio Mimbres have gravitated as far south nearly as the flow of water is now permanent. They are very abundant on both sides of the stream, wherever the high overhanging plateaux have left any habitable and tillable space; they do not seem to extend east as far as Cook's Range, but have penetrated into the Sierra Mimbres farther north, as far as twenty miles from the river eastward. Similar in disposition, size of rooms, and material of construction to those of the eastern declivity, and to those around Globe, Arizona, and in the Arroyo Pinal, running into the Upper Rio Salado, they are still distinguished from these Arizona ruins by the lack of connected courtyards, which there consolidate the different groups of buildings and enclosures. Consequently they seem to lack all defensive character, unless approximation into groups of small clusters might be regarded as such. In each cluster a little mound designates the site of the building, and I have not found, among the twenty-five ruins surveyed, more than two in the same assemblage of ruined walls connected together. The total number of ruins scattered as far north as Hicks's Ranch, on a stretch of about thirty miles along the Mimbres in the valley proper, I estimate at about sixty. This includes, of course, isolated houses, and possibly also watch-houses.

"I have not seen a village whose population I should estimate at over one hundred, and the majority contained less. They were built of rubble in mud or adobe mortar, the walls usually thin, with doorways, and a fireplace in one corner, formed by a recess bulging out of the wall. Towards the lower end of the permanent watercourse, the ruins are said to be somewhat more extensive. It is very evident from the amount of material still extant, from what has been used in building modern constructions, and from the size of the foundations, that whatever houses existed were not over one story high.

"In addition to courtyards connected with the edifices proper, there are frequently enclosed spaces without any rubbish indicating houses, and these are sometimes on an inclined plane, at such a slope as would not permit the erection of buildings. The purpose of these enclosed spaces, the largest single one of which measured about 13 by 7 meters, is difficult to establish, unless they were, as the Pima tradition states of the Arizona ruins, garden beds, rudely terraced, like the 'Andenes' of Peru. Remains of acequias in the bottoms prove that they used the latter for cultivation, so that garden beds in the neighborhood of dwellings, and above the line of irrigation even by arroyos, could only be regarded as measures of precaution in time of danger. The

Mimbres overflows its banks about once annually, but the waters subside after two or three days; the danger could only be from enemies prowling around the bottoms, but exposed to detection if they ventured near the dwelling, as the latter are invariably on treeless, if not always on elevated expanses." [1]

That the enclosures above mentioned were garden plots seems certain. I refer to the account given of such enclosed areas at Ojo Caliente of Joseph, and at the Rito Colorado in Northern New Mexico, and to what I shall further have to say on the subject.

"The valley of the Mimbres is fertile, with a very pleasant climate; but it is very unhealthy in the lower sections. Malaria is telling severely on its population to-day, and there is no reason to believe that it did not act with even greater severity on the aborigines. The insalubrity of this region may have had more to do with its abandonment in former times than any hostilities on the part of other tribes. The lack of provisions for defence is rather conspicuous; still the relatively large proportion of uninjured pottery found seems to indicate a hasty abandonment, under pressure of danger from enemies." [2]

For illustration of the peculiar type of construction of the houses, as well as of the courtyards, for defensive purposes, the ruins two miles south of Brockmann's, near the ranch of Hermann Grünewald, are characteristic. They are represented on Plate I. Figure 62. It will be seen that they consist of five distinct groups, clustering on the brow and slope of a gravelly promontory that overlooks the narrow bottom of the Mimbres. Most of the other ruins lie either on the first tier of hills, or, as is the case at Brockmann's, in the bottom itself.

[1] *Fifth Annual Report*, p. 90 *et seq.*

[2] Ibid., p. 94.

I ascended the course of the Mimbres to very near its source, and then turned to the west into the drainage system of the Gila.

"Ascending the Mimbres to about nine miles north of the mining works, the ruins drop off gradually, and a scattered forest of tall yellow pines covers the bottoms. Thence turning nearly westward, the great Continental Divide, probably here a spur of the Pinos Altos, is traversed, and the headwaters of the Rio Sapillo, a tributary of the Upper Gila, are reached. The Divide was probably uninhabited, so that there is a break of several miles between the ruins of the Mimbres and those on the Sapillo. But this break is geographical only; in every other way, the villages are alike on both streams; and the pottery, of which the cache on Gatton's Ranch has afforded complete specimens, the axes, arrow-heads, etc., are identical. But the settlements on the Sapillo are even smaller, — a fact easily accounted for by the nature of the ground, and the limited area of soil fit for cultivation.

"The Sapillo, or rather its bed, joins the Gila about twenty miles below the Ojos Calientes; but the intervening country is not merely uninhabitable, it is impassable except in a few directions. It may be said that eighteen miles of wooded and craggy waste, very picturesque, divide the two watercourses between Brannan's Ranch and the Ojos Calientes; and the name of Sierra Diablo, given it on some maps, is not at all inappropriate. On the Gila the same conditions are repeated as on the Sapillo, though on a grander scale of height and ruggedness of the mountains, and consequent depth and gloominess of the gorges. The water supply is permanently much more abundant; nevertheless, the open air settlements are identical in every respect. They are as numerous as the steep elevations of the ground and the narrowness of the bottoms permit, and along or between them natural cavities harbor dwellings of stone, well preserved, sometimes single, again in groups or small villages.

"These cave dwellings are properly but one story high, but the compulsory adaptation to the configuration of the ground has caused an accidental approach to two stories. They are instructive for the study of the development of the terraced house of the Pueblo Indian. Perfectly sheltered, and therefore quite well preserved, the cave villages are perhaps larger than the open air ruins, compactness compensating for the limitation in space. But they illustrate the fact that the foundations remaining of villages built in the open air are frequently only those of courts or enclosures, the mounds alone indicating the site of buildings. Of the twenty-six compartments contained in the caves on Diamond Creek, only nine were clearly elevated structures, as the doorways show; the rest are in many cases courts of small dimensions, encompassed by low and still perfect enclosures. The roofs are of the pueblo pattern, well defined; but in one cave the trouble of building them was spared by completely walling up the entrance, with two apertures for admission. The fire-place was a rectangular hearth, as I found it at Pecos, and placed in the centre of the room."[1]

The partition walls are all of stone, and laid in adobe mud. Some of them still preserve their outer coating of yellowish clay. Their thickness is 0.30 m., and the roofs were entire on some of the rooms. Round beams, with the bark peeled off, were in a good state of preservation. The diameter of these beams varied between 0.07 and 0.24 m. (3 to 9½ inches). The roof which these beams supported was of the ordinary pueblo pattern, and 0.23 m. (9 inches) thick. The doorways were nearly square, and low. Air-holes, T-shaped and of unusual size (0.95 by 1 meter), opened upon the outside in several places. (See the plan annexed.)

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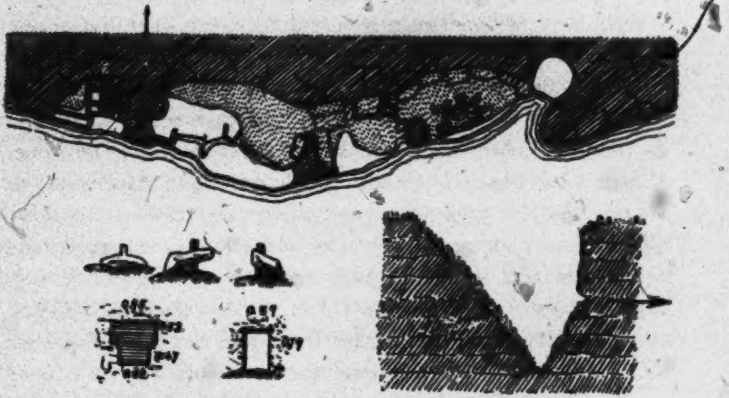
[1] *Fifth Annual Report*, p. 94 *et seq.*

These buildings occupy four caverns, the second of which towards the east is ten meters high. The western cave communicates with the others only from the outside, while the three eastern ones are separated by huge pillars, behind which are natural passages from one cave to the other. The height of the floor above the bed of the creek is fifty-five meters, and the ascent is steep, in some places barely possible. To one coming from the mouth of the cleft, the caves become visible only after he has passed them, so that they are well concealed. But while it would be difficult for an Indian foe to take the place by storm, its inhabitants could easily be cut off from water or starved. The southern slope, fronting the caves, is steep, but covered with forests, and the cleft is so narrow that a handful of men, armed with bows and arrows and posted behind the tall pines, could effectively blockade the cave dwellings. With all its natural advantages, therefore, this cave village was still extremely vulnerable.



Doorway. Window. Section of Gorge and Cave.

SKETCH OF CAVE DWELLINGS ON THE UPPER RIO GILA.

Among the many objects taken from these ruins, I mention particularly sandals made of strips of the yucca. It may be remembered that similar foot-gear was found at the Tzé-yi. I have been informed that the Tarahumares of Southwestern Chihuahua still wear the same kind of sandals. In addition, I saw many baskets or fragments of baskets; also prayer-plumes and plume-sticks. Such remains indicate that their makers were in no manner different from the Pueblo Indians in general culture.

Higher up the several branches through whose union the Gila River is formed, cave houses and cave villages are not uncommon. Mr. Henshaw has published the description of one situated on Diamond Creek, to which description I refer.[1] As the gorges become wilder and the expanses of tillable land disappear, the rocks and cliffs were resorted to as retreats and refuges. Whether the cave dwellings and cliff-houses were occupied previous to the open air villages along the Mimbres, or whether they were the last refuges of tribes driven from their homes in the valley, it is of course not possible to surmise, for in regard to the sedentary aboriginal population of Southwestern New Mexico we have not even the light of tradition to illuminate us. It may be that the Apaches, who were occupants of the country in the sixteenth century and before, have preserved some dim recollections; yet it is not impossible that even the Apaches did not find any settlers when they first drifted into the country. At the present stage of our knowledge we must consider the ancient culture of the districts under consideration as one of quite early date, the extinction of which has so far left no trace in the memory of existing stocks.

Between the valley of the Mimbres and that of the Arroyo de San Vicente, on which the town of Silver City stands, the distance by air line is not much over twenty-five miles. The town lies several hundred feet above the bed of the Mimbres,[1] and the country intervening is partly mountainous. It is the well known mining region of the Southwest, with valuable copper deposits and abundance of silver ore, mostly of inferior grades. From the Mimbres to Georgetown the ascent is over one thousand feet in three miles,[2] "through a narrow gorge or winding cañada; the slopes, very rocky, are covered with low woods."[3] Georgetown itself lies in a deep cleft, and the steep declivities are clothed with oak and conifers; yucca appears in profusion. Beyond Georgetown an elevated plateau expands, — cold, wooded, rocky, and waterless. The yucca becomes arboriferous, and the mezcal agave appears in small clusters. I was not able to find any remains of ancient abodes. After crossing the divide, the Santa Rita valley opens to view, with its copper mines established at the foot of high picturesque crags.[4] There is no water, however, and whenever I inquired concerning ruins I always received a negative answer. The Mimbres Mountains, Cook's Peak, and, after reaching Whitewater, the Sierra de la Burra in the southwest, outline the horizon with bold and striking silhouettes. In the northwest the Pinos Altos range looms up. Thence on, the country is bleak, there are no permanent watercourses, and yucca is the dominant plant. I heard of considerable ruins near Fort Bayard, and at Silver City there existed in 1884 two ruins on bald hillocks in the northern outskirts of the town. Figures 68 and 69 of Plate I. are intended to give an idea of their arrangement and relative size. They were much deteriorated when I saw them, and some excavations had been made, although I could not find out by whom. The pottery and stone axes, however, had drifted into other hands, and they were all characteristic of the southwestern ruins of New Mexico in general. Silver City has no permanent water except at a short distance below the town, where the San Vicente Creek comes to the surface. The ruins were well situated for defence, and as posts of observation. As for agricultural purposes, I judge that the wide valley may have afforded some favorable spots.

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[1] H. W. Henshaw, *Cliff-house and Cave on Diamond Creek, New Mexico*, in vol. vii. of Report upon U. S. Geographical Surveys (Wheeler), p. 370.

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[1] The altitude of Silver City is 5,796 feet (U. S. Signal Office); that of the Mimbres is about 5,000 feet.

[2] Georgetown lies 6455 feet above the sea level.

[3] From my Journal of January 24, 1884.

[4] The elevation of Santa Rita copper mines is 6,161 feet. The discovery of this important copper deposit is due to the Mexican Lieutenant-Colonel Manuel Carrasco. About the date of the discovery I am not certain; I heard it variously stated as 1801 and 1810. See Garcia-Conde, *Ensayo estadístico sobre el Estado de Chihuahua*, fol. 62.

The country west of Silver City presents a singularly bleak appearance. It is a high level gradually rising to Stein's Pass, near the Arizona frontier, where the Peloncillo terminates, and the Pyramid range begins south of it. The banks of the Gila River and the mountains to the north of it contain vestiges of antiquity. Towards the southwestern corner of New Mexico the plain expands in dismal perspective, and the mountains along and across the Mexican boundary line rise in sharp profile. I have heard of ruins in these ranges, but know nothing of their character or appearance.

From Silver City the dry bed of the San Vicente Creek continues towards Deming. This important railroad station lies on a barren plain, above which towers the craggy Sierra Florida.[1] I was repeatedly assured that no traces of ruins had been noticed around Deming. Whether there are any in the Sierra Florida or not, I am unable to state. The barren plain that extends between Deming and the Mexican frontier is destitute of ancient vestiges, as far as I know. Not even at

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[1] The altitude is 7,261 feet.

Carizalillo, where valuable springs come to the surface, the volume of which has considerably increased since the earthquake shock of May, 1887, was I able to find anything. The same holds good for the Sierra de la Boca Grande and the Sierra de la Hacha, which divide the United States from Mexico. They are dismal mountain clusters, with rocky slopes covered by a scrubby and thorny vegetation. Only the summits are crowned by groves of stunted oaks.

With this review of the antiquities of Western New Mexico I close my report on the work done by me in that Territory. It was very fragmentary, but circumstances, and not my own will, prevented me from doing better. The same may be said of my investigations in Arizona, to which I shall now turn.

VIII.

NORTHERN ARIZONA.

UNDER this heading I include that part of the Territory of Arizona lying north of the line of the Atlantic and Pacific Railroad. I have not visited it, and therefore can refer but briefly to its antiquities. Of the numerous ruins in the Tzé-yi (Cañon de Chelly) I have spoken already.

Ethnologic interest in this country centres in two places: the cluster of pueblos inhabited by the Shi-nu-mo, or Mo-qui, and in the Grand Cañon of the Colorado, where the Hava-su-pay, or Cosninos, have their home. There is historic information of an early date concerning the Moquis; and the Cosninos also were known to the Spaniards in the seventeenth century. This documentary information casts a certain light upon conditions anterior to the historical period, and for this reason I shall refer to it somewhat in detail.

The earliest information concerning the Moqui country is that transmitted to us by Fray Marcos of Nizza in 1539, and subsequently confirmed by Melchor Diaz. As far south as the heart of Sonora the Franciscan explorer heard of a cluster of towns, or "province," called "Totonteac," which he ascertained lay to the west of Cibola.[1] In the same year Diaz reported: —

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[1] Not having the original version of Fray Marcos's *Descubrimiento de las Siete Ciudàdes* (volume iii. of Documentos de Indias) at my command, I quote from the French translation in *Cibola*, *Relacion de Frère Marcos de Nizza*, p. 270: "Il m'a rapporté que dans la direction de l'ouest on trouve le royaume nommé Totonteac."

"I have learned that Totonteac was at seven short journeys from the province of Cibola; that the appearance of the country is the same as that of Cibola, as well as the houses and the inhabitants. They told me that cotton grew there, but I doubt it, for it is a cold country. They reported to me that Totonteac was composed of twelve towns, each of which is more considerable than the largest of Cibola.

"One day's march from the latter province, there exists a town the natives of which are at war with the others. The houses, the people, and their relations towards one another, are alike. They affirmed to me that this town is the largest of all."[1]

The last paragraph seems to apply to Hauicu, the most westerly of the Zuñi villages.

It seems strange that in the year following Coronado heard nothing of Totonteac, although some of his men visited a group of seven pueblos situated in the same direction and at the same distance from Cibola (Zuñi), which he calls "Tusayan."[2] The origin of the latter name is traced back to the Zuñi word "Usaya," "Usayan" being the possessive; "Usaya," or "Usaya Kue," is an ancient name by which the Zuñis designated some of the Moqui Pueblos. This original Zuñi word for the Moquis appears more distinct yet in the reports on the explorations made by Francisco Sanchez Chamuscado in 1580, as "Osay" and "Asay."[3] The geographical evidence in favor of the identity of Tusayan with the Moquis is, besides, quite conclusive.

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[1] Mendoza, *Deuxième Lettre à l'Empereur*, p. 296.

[2] *Cibola*, part ii., chap. iii., p. 165: "À vingt lieues vers le nord-ouest est une autre province qui contient sept villages; les habitants portent le même costume, ont les mêmes mœurs et la même religion que ceux de Cibola." In the heading to part i., chap. xi., Castañeda says, "Tusayan ou Tutaliaco." This is another name which I am unable to explain. Jaramillo (*Relation*, p. 370) has Tucayan.

[3] *Testimonio dado*, pp. 86 and 93.

Mr. Cushing has ascertained that Topin-teua or Topin-keua was a Zuñi name for a cluster of Moqui pueblos, some of which have been in ruins for centuries. If I have correctly understood Mr. Cushing's statements, the historical Moqui pueblos formed a part of the original Topin-keua. It seems likely that Totonteac is a corruption of that name, and is a reminiscence of conditions previous to the sixteenth century. Whatever Fray Marcos and Melchior Diaz reported was from hearsay only, and from the talk of Indians who, while certainly acquainted with the country and tribes north of the Gila River, still had only imperfect information.

The pueblos of Topin-keua are said to lie south and southeast of the present Moqui cluster; there are also pueblo ruins quite near to the villages and on the same system of mesas. But the ruin which has attracted greater attention is that of the pueblo of Ahua-tuy-ba, or Aua-tu-ui, called Tallahogandi by the Navajos, situated on a branch of the Little Colorado River. Captain Bourke has given the following description of the ruins: —

"These ruins are at least a quarter of a mile square, and walls are still standing ten feet high and five feet thick. These walls are of two kinds: of adobe, mixed with hay and cut straw, laid in mud, with an intervening stratum of small fragments of pottery between every two courses of adobe; and of natural rubble, averaging five inches square by three inches thick. The Moquis tell the story that this town was destroyed by the people of Mushang-newy (one of the Moqui villages), who came over in the night, got on the top of the roofs, and tossed bundles of straw down upon the people inside and stifled them.

"They explain this attack by saying that the town was full of 'singing men,' whom the Moquis did not like.

"The portion of the ruin still standing will represent perhaps as many as forty or fifty houses, with rooms of varying dimensions, twenty feet by ten being the more usual size."[1]

Captain Bourke rightly supposes that these ruins are those of the historical pueblo of Aguatubi. Aguato is first mentioned, in 1583, by Antonio de Espejo, who visited it with only nine men, starting from the Zuñi pueblos for that purpose.[2] It is not mentioned by Juan de Oñate when the Indians of Moqui, on the 15th of November, 1598, pledged themselves to allegiance to the Spanish Crown.[3] I am unable to give any particulars concerning the pueblo until the 10th of August, 1680, when its inhabitants, together with the other Pueblo Indians, rising in arms against the Spaniards, murdered Fray José de Figueroa, their priest, and burnt the church, which was dedicated to San Bernardino. The village was at the time credited with eight hundred inhabitants.[4] Twelve years later, Diego de Vargas appeared before Ahuatuyba with his small force on the 19th of November, and was met by a number of Indians in arms, some of whom were on horseback. Vargas prudently avoided the impending conflict, and negotiated with such dexterity that the Moquis returned to their allegiance and suffered the missionaries accompanying the troop to baptize such of the children as had been born during the past twelve years.[1]

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[1] *The Snake Dance of the Moquis of Arizona*, p. 90.

[2] *Relacion*, p. 118. *El Viaie* (page 11) in Hakluyt has "Zaguato."

[3] *Obediencia y Vasallaje á su Magestad por los Indios de la Provincia de Mohoqui* (page 137) has only four pueblos: "Naybi [Orambe], Xumupani [subsequently Mishongopavi], Cuanrabi [?], and Esperiez [?]."

[4] Fray Francisco de Ayeta, *Carta al exmo Senor Virrey de la Nueva España*, September 11, 1680 (MS.): "En el convento de Aguatubi el P. Fr. José de Figueroa, hijo de la santa Provincia del Santo Evangelio, natural de la ciudad de México, entró de misionero el año pasado de 1674." Vetancurt, *Menologio*, p. 275. *Crónica*, p. 321: "San Bernahdino de Ahuatobi, en la provincia de Moqui, veintiseis leguas de la de Zuñi, está en un alto el pueblo que ocupan ochocientas personas; conversion que hizo el venerable Padre Fray Francisco de Porras, cuya vida está en el Menologio, á 28 de Junio. Beben agua de cisterna algo salobre. Hay piedra pomez en cantidad, y piedras que sirven de carbon: aunque el humo es nocivo por fuerte. Allí en el rebelion mataron al Padre Fray José de Figueroa, alias de la Concepcion, Mexicano de esta provincia, y el templo acabó en llamas." Captain Bourke says of the situation of the ruins (*Snake Dance*, p. 88): "A hundred yards or more beyond the Navajo 'hogans' we had the satisfaction of discerning the ruins we were seeking, on the point of a promontory, a mile and a half away."

Of the other Moqui pueblos Oraybi was the only village that did not receive the visit of Vargas; not because there was any opposition to his entering the place, but because the horses of the Spaniards were exhausted from the long and rapid journey. Vargas left the Moquis apparently in the most favorable disposition.[2]

The Pueblo outbreak of 1693 affected the Moquis also. They had no occasion to participate in it directly, as the seat of war was too remote from their homes; but fugitives from the rebellious villages, chiefly Tehuas and Jemez, quartered themselves among them, and kindled again the spirit of hatred against the whites. It is also likely that the submission to Vargas had been merely an act of temporary policy, to which they were prompted by the remarkable success of his bold movements, and that as soon as the Spaniards disappeared the Moquis considered themselves released from their pledges. The Tehua outbreak of 1696 made matters worse, in furnishing new accessions to the colony of Tehua refugees. They founded a pueblo of their own, between Ahua-tuyba and the other Moqui towns, but in closer proximity to the latter. Geographically Ahua-tuyba occupied a rather isolated position in relation to the others. Its relations towards the Zuñi tribe were more intimate and also more friendly. When, therefore, Fray Juan de Garaycoechea reopened the mission at Halona in 1699,[1] the Moquis (possibly at the instigation of the inhabitants of Ahua-tuyba) voluntarily offered to return to Christianity, rebuild the churches, and receive missionaries.[2] In consequence of this Father Garaycoechea went to Ahua-tuyba on the 28th of May, 1700, and found that the convent had been rebuilt or repaired by its Indians, who were glad to see their mission re-established. But the other Moquis, while outwardly friendly, still dissuaded the missionary from visiting their homes.[3] This was the first indication of a treacherous disposition, — one which was soon to display itself in a most cruel and unjustifiable action.

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[1] Escalante, *Relacion*, p. 134: "Como la caballada no había venido á satisfaccion de Zuñi, iba muy maltratada, y así en los mejores caballos se adelantó, aunque poco el gobernador con 30 hombres, y una legua antes de llegar al pueblo dicho, en la subida de una mesa le salieron al encuentro de 700 á 800 Moquinos bien armados de á pié y de á caballo, con demostraciones de guerra y provocando el rompimiento; iba conteniendo y con buen orden dando tiempo á que la demas gente llegase, y con persuasiones pacíficas contuvo á estos rebeldes, que por mas de una hora repugnaron recibirlo. Pero logró entrar en el pueblo mediante inclinacion que manifestaba el indio capitan de el, nombrado Miguel. Por el cual el dia siguiente diéron la obediencia, y fuéron absueltos de la apostasía todos los de Aguatuvi, y fuéron bautizados 122 criaturas de ambos sexos. Concluido esto se regresaron el gobernador, los padres y demas al aguaje, en que habían determinado pasar la noche: el cual está una legua hácia al Norte del pueblo." I copy the latter part of the quotation, since it gives the location of the water near the ruins. Escalante gives in the above a *résumé* of Vargas's Journal, *Autos de Guerra*, 1692, fol. 176 to 198.

[2] Escalante, *Relacion*, p. 135: "No pasó el gobernador á Oraibe porque le informaron que aun distaba nueve leguas (no hay mas que dos ó dos y media desde Jongopavi) y ya estaba imposibilitada la caballada."

On the 11th of October of the same year one of the leading chiefs of Oraybe appeared at Santa Fé with twenty other delegates, and presented themselves to the Governor, Pedro Rodriguez Cubero, as a formal embassy from the Moquis, not as subjects and vassals of the Crown, but as delegates of a foreign power sent to conclude a treaty of peace and amity. This Cubero could not entertain; still he negotiated with them for a long while, until finally the Moquis, seeing that the Governor would not recede from his position, seemingly yielded consent to everything that was asked. With these false promises they were suffered to return, and Cubero indulged the hope that he had completely gained his point.[1]

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[1] Escalante (*Relacion*, p. 177) says, "El año de 1700 pasó á Zuñi el Padre Fray Juan de Garaycoechea"; but the *Libro de Entierros de la Mission de Nuestra Señora de Guadalupe de Zuñi* (MS.) begins in 1699 with entries in the handwriting of Father Garaycoechea.

[2] *Relacion*, p. 177.

[3] Fray Juan de Garaycoechea, *Carta al Gobernador* (*Relacion*, p. 178).

In the mean time Ahua-tuyba had virtually become again a Christianized pueblo. In the last days of the year 1700, or in the beginning of 1701, the Moquis of the other pueblos fell upon the unsuspecting village at night. The men were mostly killed, stifled in their estufas, it is said; the women and children were dragged into captivity, and the houses were burnt. The exact date of this butchery I have not been able to find, as nearly all the papers concerning the administration of Cubero have disappeared from the archives at Santa Fé; but enough is left to establish the fact of the occurrence, and to prove the probable accuracy of the Moqui version, which Captain Bourke has preserved.[2] Since that time Ahua-tuyba has belonged to the class of ruined historical pueblos.

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[1] *Relacion*, p. 179. The proposition was such an original one that I cannot resist copying the text: "Respondió Espeleta, que él venia á nombre de todos los Moquinos, y que estos en consulta general, habían resuelto admitir que entrasen los religiosos á bautizar los párvulos de cada pueblo de la provincia; sucesivamente en seis años, entrando el primer año al primer pueblo, y regresandose concluidos los bautismos, y el siguiente año al segundo pueblo, y de este modo entrando y saliendo hasta llegar á Oraibe y completar los dichos seis anos, y concluidos estos del modo dicho se rendirian todos los Moquinos y admitirian de asiento á los ministros." It must be remembered that the Moquis had given their allegiance to Spain anew, in 1692; that consequently Cubero could not regard them in any other light than as vassals and subjects, and that consequently he could not entertain such proposals on their part.

[2] The only document which I found, in which detailed reference is made to the slaughter of Ahuatuyba is a *Parecer* of the clergy of New Mexico, bearing date 1722. In it the destruction of Ahuatuyba is explicitly stated. There existed at Santa Fé, in 1713, a collection of testimonies taken on the occurrence, and described as follows: "*Yten vn Quaderno de autos sobre la notisia de lo susedido en*

The pottery of Ahua-tuyba is remarkably handsome in ornamentation, and good in quality. Mr. Cushing writes concerning this feature:—

"Before discussing the origin of other forms, it may be well to consider briefly some influences, more or less local, which, in addition to the general effect of gourd-forms in suggesting basket-types and of the latter in shaping earthenware, had considerable bearing on the development of ceramic art in the Southwest, pushing it to higher degrees of perfection and diversity in some parts than in others.

"Perhaps first in importance among these influences was the mineral character of a locality. Where clay occurred of a fine tough texture, easily mined and manipulated, the work in *terra-cotta* became proportionately more elaborate in variety and finer in quality. . . .

"An example in point is the ruined pueblo of *A'wat u i* or *Aguatobi*, as it was known to the Spaniards at the time of the conquest, when it was the leading city of the Province of Tusayan, near Moki. Over the entire extent of this ruin, and to a consideroble distance around it, fragments of the greatest variety in color, shape, size, and finish of ware occur in abundance. In the immediate neighborhood, however, are extensive, readily accessible formations producing several kinds of clay, and nearly all the color minerals used in the Pueblo potter's art."[1]

I saw a flat urn from Ahua-tuyba which had the figures of two birds painted upon its surface, that from their color, and especially from the shape of their beaks, created the im-

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el puo de Aguatubi de la proa de Moqui autorisadas de Pedro de Morales en 63 *fojas.*" It is mentioned in *Ymbentario de los Papeles que se hallan en el Archibo del Cabildo justisia reximiento de esta villa de Santa Fé*, 1713, MS.

The "singing men," of whom Mr. Bourke speaks, were, as he justly supposed, priests; but there was no priest at Ahuatuyba at the time of the massacre. The reference to them applies to the visit made by Father Garaycoechea in 1700.

[1] *Pueblo Pottery* (Report of the Bureau of Ethnology, 1882–83), p. 493.

pression that they might be intended for rude representations of the red macaw, or aras, of the American tropics. Granting that this was the design of the maker, the fact that Ahuatuyba was occupied until the beginning of the eighteenth century, and that a mission was in existence there until 1680, might readily explain how the Moqui Indians could have obtained an idea of such a bird. The vessel in question could therefore not be cited in evidence of a hypothetical ancient communication of the Pueblos with tropical America.

Of other ruins in the Moqui country I can only say that such exist, and have been described in the Reports of the Bureau of Ethnology and of Captain Bourke.[1]

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[1] *Annual Report of the Bureau of Ethnology*, 1883–84, p. xxiii: "The work of this party for the field season was concluded by an examination of two distinct classes of ancient ruins in Arizona, one about ten miles northeast, the other about fifteen miles southeast of Flagstaff. The former consisted of sixty or more cave dwellings, situated on the summit of a round lava-capped hill. The dwellings are close together, and were carved out beneath the hard shelter rock of lava, under which the material was rather loose, readily yielding to the rude stone implements used in making the excavations. In these dwellings fragments of ornamented pottery were discovered resembling somewhat the ancient pottery so abundant in many portions of Arizona, and specimens of it were collected. Other objects, such as metates, stone axes, mullers, and corn-cobs, were found in the excavations, and the seeds of several species of small grain were scattered through them. Fragments of several kinds of bone were also found, representing the elk, deer, wolf, badger, rabbit, and some other animals. The ruins about fifteen miles southeast of Flagstaff are similar to those in the Cañon de Chelly. These ruins are extensive, and built on terraces in the side of Walnut Cañon. They differ, however, from the cliff dwellings of Cañon de Chelly in construction. The doors are large, and extend from the ground up to a sufficient height to admit a man without stooping. The rooms are large and the walls are two to four feet thick. The fireplaces are in one corner of the room on an elevated rock, and the smoke can only escape through the door. The masonry compares favorably with any employed in the construction of the best villages in Cañon de Chelly. Many objects of interest were found in the débris around and in these houses. Matting, sandals, spindle whorls, and stone implements of various kinds abound."

Mr. Victor Mindeleff also examined a ruin which the Navajos call Kintiel, twenty-four miles south of Pueblo Colorado, Arizona. A circular doorway was noticed "made of a single slab of sandstone pierced by a large round hole."

Of the ruins in the cañones of the great Colorado River of the West Major Powell has given descriptions. They were small houses, partly of the cliff-house type, and either isolated dwellings, or in groups of from two to six together. Pottery, arrow-heads, and metates accompanied them, and trails had been partly scraped out of the steep rocks to permit access from below.[1] It appears as if these buildings had been the work of sedentary Indians seeking refuge from impending danger.

It has been suggested that some of these remains date from the historical period, being due to Pueblo Indians who sought safety from the approach of the Spaniards in the frightful clefts of the Colorado River of the West. It consequently becomes of interest to investigate what the early Spanish explorers knew of the greatest river of the Southwest; how they came to know it; which were the tribes inhabiting its upper course in the sixteenth century, and what Indians dwelt or roamed between the Great Colorado and the Moqui country; and, finally, what were the relations of the Spaniards to those tribes.

Another ruin, small, and called Kinna Zinde by the Navajos, was also examined. "Its position on the edge of a long valley on an elevated belt of rock suggests its use in connection with agriculture." Several other small ruins occur in that vicinity.

Bourke, *Snake Dance*, p. 86 · "Fourteen miles from the Moqui Agency are the ruins of a pueblo still standing two and even three feet above the surface. It has so often been mistaken for the ruin of which we were in quest, that it has received the name of the False Tolli-hogandi, but while it does not deserve much mention in the same chapter with the true ruin, it is nevertheless an interesting monument of good area, made of rubble of all sizes of sandstone and basalt gathered in the immediate vicinity. . . . The situation of this old pueblo is peculiar in this, that close at hand is a marked depression of not less than one hundred acres in area, which there are reasons for believing was once a reservoir for storing water from melted snow and rain." Other ruins are mentioned on p. 317.

Many other quotations might be added from other sources, but I prefer to limit myself to the above.

[1] *Exploration of the Colorado River of the West and its Tributaries*, pp. 69, 77, 87, 90, and 125.

While it is not quite certain, there is still some indication that the Spaniards heard of the mouth of the Colorado as early as 1529.[1] In 1540, however, Spanish explorers not only reached the mouth and ascended the stream for some distance, but Captain Garcia Lopez de Cardenas, with twelve men, started from the Moqui villages with guides furnished by the Moquis, and reached the great cañones of the Colorado, after traversing for twenty days a completely deserted country.

"After these twenty days' march," says Castañeda, "they indeed reached that river, the banks of which are so high that the Spaniards thought them to be three or four leagues up in the air. The country is covered with small and scrubby pines; it is open to the north, and the cold is so intense that, although it was in summer, they could hardly stand it. The Spaniards marched for three days along these mountains in hopes of finding a place where they might descend to the river, which from above hardly seemed to be one fathom in width, whereas, according to the Indians, it was more than half a league wide; but it proved impossible to reach it. When, two or three days later, they arrived at a place where the descent seemed easier, Captain Melgosa, Juan Galeras, and another soldier, who were the most agile of the troop, decided to make an attempt. They climbed down so far that those who remained above lost sight of them altogether. About four o'clock in the afternoon they returned, and reported that they had met so many difficulties that they had been unable to reach the bottom, for what from above seemed easy became very difficult as soon as they came to it. They added that they had descended about one third of the depth, and that from there the river already looked very wide, which confirmed what the Indians had told. They asserted that some cliffs that were visible from above and appeared to be of the height of a man, were higher than the tower of the cathedral of Sevilla. The Spaniards gave up following the cliffs that lined the river because there was no water, which until then they had been compelled every night to go a league or two inland to find."

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[1] *Segunda Relacion anónima de la Jornada de Nuño de Gusman* (Documentos para la Historia de México, vol. ii. p. 303): "La demanda que llevábamos cuando salimos á descobrir este rio era las Siete Cibdades, porque el Gobernador Nuño de Guzman tenía noticia dellas, é de un rio que salia á la Mar del Sur, é que auía cuatro ó cinco leguas en ancho, é los Indios tenian una cadena de hierro que atravesaba el rio para detener las canoas é balsas que por él viniésen, ó que era gente muy belicosa, é hallamos lo que tengo dicho." The Spaniards had then already reached the Yaqui River.

Beyond that place a distance of four days' march, the Indian guides said that it was impossible to proceed, as no water would be found for four days. So further exploration was given up, and the Spaniards returned to Cibola.[1]

No mention is made of any inhabitants; the country explored by Garcia Lopez de Cardenas appears to have been a desert.

The next Spaniard who penetrated to the west of the Moquis was Antonio de Espejo, in 1583. He travelled forty-five leagues towards the Colorado River, without however reaching its banks. Along his route he met Indians who wore crosses in their hair made of wood, and he heard of Indian villages; but whether these were built of solid material, or were simply gatherings of frail huts, does not appear from his report.[2]

Definite and detailed information concerning the tribes of a part of Northwestern Arizona was furnished for the first time by Juan de Oñate, upon his return from the remarkable expedition which, with only thirty men, he accomplished from Chamita on the Rio Grande to the mouth of the Great Colorado River and back, in the years 1604 and 1605. Oñate went from Zuñi to the Moquis, and thence must have taken a southwesterly direction to the Colorado, which he struck below the deep cañones.

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[1] *Cibola*, p. 62 *et seq.*

[2] *Relacion*, p. 121.

It is difficult to establish with accuracy the route taken by Oñate, since the itinerary at my command is not the official one, which, if it exists, is not accessible to me. Ten leagues west of the Moquis the Colorado River was reached, and the name was given to it on account of its turbid waters of a red or reddish color. This must have been the Little Colorado, and not the main stream. Thence they travelled along the Sierra de San Francisco, or perhaps crossed it. The Rio de San Antonio, which is spoken of as flowing past the southern or western slopes of that elevated chain, appears to be Cedar Creek, one of the main branches of Cataract Creek, and the next one (both of which contained very little water) may have been Partridge Creek. I suppose that at all events they passed north of Prescott, reaching the banks of the Great Colorado about Fort Mojave, or at The Needles. The Amacavas, or Mojaves, dwelt a short distance higher up the stream. On the whole journey from Moqui to the Colorado River only one Indian tribe was met with. These were nomads, lived by hunting, and dwelt in huts of straw. These Indians were called the Cruzados by the Spaniards, on account of small wooden crosses which they were wont to tie to their forelocks whenever they presented themselves to the whites. This custom was attributed to the teachings of a Franciscan missionary, who, it was understood, had visited these parts of Arizona years previously.[1]

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[1] The only somewhat detailed report on the trip of Oñate to the mouth of the Colorado at my disposal is contained in Father Zárate's *Relaciones de todas las cosas*, so often quoted. It is contained in paragraphs 44 to 57 inclusive. In paragraph 46 he says: "Salieron de Moqui, y á 10 leguas hácia el Poniente llegaron al rio Colorado, llamaronlo assi porque es el agua casi colorada. Corre este rio sueste-norueste, despues da buelta al Poniente, y dicen que entra en la California." This is a very good description of the course of the Little

Espejo had no priest with him when he penetrated to Moqui and to the west of it; whether Garcia Lopez de Cardenas was accompanied by a priest in 1540, I have not been able to determine. It is possible that the Cruzados, having heard of the great veneration which the whites had for the symbol, adorned their bodies with it to secure the friendship of the strangers. Who the Cruzados were is equally indefinite, although they may possibly, from the locality in which they were found, have been the Yavipais.[1] Oñate had no conflict whatever with the natives, but found them without exception friendly, and gave them no cause for abandoning their homes. Of cliff dwellers or cave dwellers, or sedentary natives in general, the Spaniards heard nothing in the countries west of the Moqui villages.

Colorado. The mountain chain, "Desde este rio caminaron al Poniente atravesando una serrania de pinales que tenía ocho leguas de travesía, por cuyas faldas por la parte del Sur corre el Rio de San Antonio dista 17 leguas de Sn José que es el Colorado, corre Norte Sur por sierras acrias y peñas altisimas, é da poca agua," can only have been the San Francisco range, and the San Antonio either Cedar Creek or Cataract Creek, according as the Spaniards crossed the latter, or kept along its northern slopes; I favor the former assumption. Beyond the San Antonio "es tierra templada," which indicates that they did not proceed due west, but southwest. "Cinco leguas adelante hácia el Poniente está el rio de Sacramento, es de tanta agua como él de Sn Antonio, tiene su nacimiento onze leguas hácia el Poniente, corre Norueste Sueste por las faldas de unas mui altas sierras donde los Españoles sacaron mui buenos metales." This may have been Partridge Creek. That the "Amacavas" were the Mojaves needs, I believe, no further proof.

[1] The Yavipais belong to the Yuma stock; at present they live west of Prescott in Arizona. Fray Francisco Garcés, in 1776, locates the Yavipais to the northwest of the Colorado River. He mentions four branches: Yavipai Cajuala, Yavipai Cuercomache, Yavipai Jabesua, and Yavipai Muca Oraive. *Diario y Derrotero que siguió el M. R. P. Fr. Francisco Garces en su viaje hecho desde Octubre de* 1775 *hasta* 17 *de Setiembre de* 1776, *al Rio Colorado para recoñocer las naciones que habitan sus márgenes, y á los pueblos del Moqui del Nuevo México* (in Documentos para la Historia de México, segunda série, vol. i. p. 351). From his statements in regard to the various tribes and their relations with one another, however, I gather that the Yavipais were either much dispersed, or else that he employs the term in a sense similar to that now used for "Apaches" in Arizona, attaching it to the names of various other tribes entirely distinct from the Apaches proper, as Apache-Mojave, Apache-Yuma, Tonto-Apache, etc.

There is a mention of an expedition made in 1618 to the Colorado River by Vicente de Zaldivar with forty-seven men. The report upon it is brief, lacks detail, and comes from a suspicious source; still it may be authentic. No information is afforded about the ethnography of the country except that, after reaching the Colorado at the latitude of 36½ degrees and travelling upward along its banks for two days, they came to "a small settlement" where they obtained information concerning the regions farther north. This information bears chiefly upon a great lake, and nothing is stated concerning sedentary tribes.[1] Latitude 36½° corresponds about to latitude 35°, the average error at the time being 1½ degrees, or the latitude of Fort Mojave. The "settlement" in question appears therefore to be one of the Mojave Indians. If the document about this expedition is genuine, it shows that the intercourse with the natives was not such as to inspire any fear in them.

The knowledge which the Spaniards had of what lay west of the Moqui tribe does not appear to have been much increased during the seventeenth century; but Oñate met on his memorable journey to the Gulf of California many ruins of ancient buildings and of irrigating ditches. Such vestiges were found west of the Moqui district, and the Indians who were interrogated said it was an ancient tradition that many centuries ago people passed through those parts, moving southward, and that nobody knew what had become of them, — whether they were still alive, or whether they had disappeared.[1]

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[1] The only document that pretends to give any details concerning the journey of Vicente de Zaldivar, which I have been able to consult, is published by Mr. John Gilmary Shea in his book on *Peñalosa*. Its title is *Noticia de otra Expedicion anterior por el Maestre de Campo Vicente de Saldivar*. If the authenticity of the journey rested on no other testimony than that of the document mentioned, I should, since it has been proved by Captain Don Césareo Fernandez Duro that the report of Peñalosa is, if not a complete fraud, at least a very suspicious document, be very loath to regard the expedition as anything else than a hoax. But there is additional testimony to the effect that Zaldivar really undertook the trip, and carried it out as far as the Colorado River of the West. Fray Gerónimo de Zárate-Salmeron says (*Relaciones de todas las cosas*, par. 109): "El Padre Fray Francisco de Velasco, religioso de las prendas que todos saben y arriba queda dicho, tratandole yo de estas noticias, me dijo como yendo en compañía del Maestre de Campo Dn Vicente de Saldivar á descubrir la mar del sur, cuando se volvieron al cabo de cuatro meses de peregrinacion, sin llegar al mar en una jornada." There is no clue to the date of this journey, which at all events must have been posterior to that of Oñate. The document published by Mr. Shea makes no mention of the presence of Father Velasco, and only mentions Fray Lázaro Ximenez; the whole subject is quite obscure.

When the Zuñi missions were first established, the missionaries heard of a tribe living in Eastern Arizona who were called Zipias.[2] I requested Mr. Cushing to inquire concerning this tribe, and he obtained the information that the Tzip-ia Kue were well known to the Zuñis formerly; that they dwelt in Arizona and south of the Moquis; but that now they had lost track of them completely. Whether they were sedentary Indians or nomads I could not ascertain.

A reasonably clear *résumé* of what was known of the ethnography of Eastern Arizona is furnished in 1686 by Fray Alonzo de Posadas. In his memoir addressed to the King, I find among other tribes that of the Coninas mentioned. The Cipias are also alluded to, as living north of the boundaries of what was then Sonora, while the Coninas, or Cosninos, seem to have dwelt north of them, or perhaps southwest. The Cipias disappear from Spanish annals after the seventeenth century, but the Coninas or Cosninos continue to play a part in the ethnography of Arizona.[1] In 1776 Fray Francisco Garcés intimated that the Cuesninas or Cuismers might be the Mojaves, since that name was given to the latter by the Cocomaricopas.[2] In the same year Fray Silvestre Velez de Escalante visited the Cosninos at their homes, and found them to be agricultural Indians, with flocks and in possession of peach trees.[3] But already in 1686 it was stated that the tribe was sorely pressed by the Navajos.[4] To-day they dwell on the banks of the Colorado River, "less than seven miles due south of the Grand Cañon of the Colorado, and more than three thousand feet below the level of the surrounding plains. Here were found about thirty huts, occupied by two hundred and thirty-four Indians, men, women, and children."[5] These facts are due to Mr. Cushing, and it is greatly to be regretted that his investigations, linguistic as well as ethnological, have not as yet been made public. He informed me, however, that the dwellings were partly built of mud, consequently on a more durable plan than those of the other tribes of the Colorado River.

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[1] Zárate, *Relaciones de todas las cosas*, par. 104: "En aquella jornada se hallaron muchos edificios y ruinas antiguas, acequias que es como las había antiguamente, en México Azcapuzalco, y las granjas de los metales que beneficiaban. Esto se vió adelante de la provincia de Mooqui, y preguntando á los Indios qué ruinas eran aquellas, respondieron que era tradicion de los viejos, á quien oian contar que muchos siglos había que pasaron por allí gran numero de gente la cual había salida de la laguna de Copalla, aunque ellos la nombran por otro nombre porque es otra lengua que hablan, á poblar nuevos mundos, caminando hácia el Sur, y que fueron tan lejos que nunca se supo de ellos si eran vivos ó muertos."

[2] The Zipias must have dwelt west of the Zuñis. In 1630 or 1632 Fray Martin de Arvide intended to visit them, but was murdered five days after the Zuñis had killed Fray Francisco Letrado, their missionary. Vetancurt, *Menologio*, p. 76.

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[1] Fray Alonzo de Posadas, *Informe al Rey sobre las Tierras de Nuevo México, Quivira y Teguayo:* "Tiene dicha nacion Apacha unas vegas y pedazos de tierra muy amenos y fertiles, en cuyo puesto hay cantidad de habitadores de esta nacion Apacha, y está la Sierra Azultan nombrada de rica por haberse ensayado sus metales muchas vezes, pero nunca poseida por nuestra omision y tibieza, y por la mesma parte sustenia la guerra y aun hace muchos daños la misma nacion Apacha en los Indios de la nacion Cipias, que la caen á la banda del Sur, y á la del Norte de las provincias de Sonora y Sinaloa. Desde dicho puesto de Nuestra Señora de Guadalupe habrá mas de 100 leguas hasta Oso del Cuartelejo, del cual prosigue la dicha nacion Apacha por el dicho rumbo del Oriente al Poniente á la parte del Sur por la nacion que llaman Coninas." I find the Coninas or Cosninos mentioned again (among other authorities) in Rivera, (*Diario y Derrotero*, p. 33.) as one of the tribes hostile to the Spaniards.

[2] Garcés, *Diario y Derrotero*, p. 352: "En los nombres de las naciones puede y suele haber muchas variaciones, V. G. los Cocomaricopas y Jalchedunes llaman á los jamajabs Cuesninas ó Cuismers, y los demas jamajabs."

[3] Escalante, *Diario y Derrotero de los Rr. Pp. Fr. Francisco Atanasio Dominguez y Fr. Silvestre Velez de Escalante, para descubrir el camino desde el Presidio de Santa Fé del Nuevo-México, al de Monterey, en la California Septentrional.* (Same volume as the report of Father Garcés, pp. 539, 541, 543.)

[4] Posadas, *Informe:* "Y esta nacion de los Coninas la tiene en el todo avasallada la dicha nacion Apacha."

[5] *Report of the Bureau of Ethnology*, 1881 and 1882, p. xviii. Shufeldt, *Some*

Mr. Gatschet classifies the Cosninos linguistically among the Yuma tribes.[1] Hence they cannot have been fugitives from the Moquis, who are Shoshonis according to the same authority. Furthermore, while other tribes of the Pueblos have taken refuge among the Moquis during the past three centuries, the latter have always, since 1692, successfully held their own, even to such an extent as to become aggressive against the Zuñis, who adhered to the Spanish cause. Of Spanish incursions into the country west of the Moquis, the most important in point of numbers was that by Zaldivar, and it seems that it made no impression, and was not intended for anything else than exploration; as such it proved not encouraging. The retreat of the Cosninos into the Colorado gorges was therefore due to other causes. The pressure exercised over them by the Navajos, and possibly by the Yutes, is much more likely to have occasioned it than any imagined panic created by the appearance of Spaniards in small numbers and at rare intervals.

Most, if not all, of the ruins scattered over the regions adjacent to the Colorado River, antedate the coming of the white man. Upon the causes of their abandonment it is

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Observations on the Havesu-pai Indians (Proceedings U. S. National Museum, vol. xiv. p. 387).

[1] *Classification of Western Languages, etc.* (in volume vii. of the Reports of the U. S. Geographical Surveys west of the 100th Meridian, p. 415). He says: "A tribe inhabiting Cataract Creek, a southern affluent of Colorado River, and calling themselves Avesu-pai, 'people down below.' A locality called Konino Caves lies in the Tonto basin."

of course useless for me to speculate. Some of them may be those of Moqui villages, some those of Cosninos settlements. The former, with the exception of Ahua-tuyba, are prehistoric; but we may hope to obtain light upon their past in the traditions of the Moquis. As to the others there is a possibility that several of them were occupied not more than one hundred years ago. The remainder belong to the class of ruins that are not only prehistoric, but in regard to which there is a wide field of study open in the folk-lore of existing tribes.

About the archæology of the Apache reservation I can present at least some results of personal investigation.

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IX.

THE UPPER COURSE OF THE LITTLE COLORADO RIVER, AND THE APACHE RESERVATION IN EASTERN ARIZONA.

THE Little Colorado River, or Colorado Chiquito, rises very near the boundary line of New Mexico and Arizona, on the eastern declivity of Green's Peak, one of the summits of the Sierra Blanca in Arizona.[1] It flows in a direction almost due north to the recent settlement of St. John's, and thence to the northwest in a muddy sluggish current, not wide, but sometimes with treacherous approaches. The district included in this chapter embraces the country lying between the parallels of 33½° and 34½°, and the 109th and 110th meridians, or between the junction of the Little Colorado and Zuñi streams in the north, and the southern limits of the Prieto plateau in the south. I entered this region from Zuñi, that is, from the northeast, and traversed it to the Gila River, branching off both to the right and the left as occasion required.

After we leave the Cañada del Venado, the country takes a dismal aspect. Dreary levels, interrupted by equally dreary hillocks and buttes, extend in almost every direction. Vegetation is scant and low. Nothing pleases the eye, unless it be the lofty Sierra Blanca in the distant south, and the outlines of the Sierra del Dátil and of the Escudilla in the southeast. There is no water between the Little Colorado and the crossing of the Zuñi stream. This is no country for Indian tillers of the soil, and no ruins may be looked for. St. John's lies on a flat, lined by gravelly slopes on one side and by volcanic humps and low cones on the other In the bottom near the Colorado traces of ancient irrigating ditches have been detected, and on one of the hills of gravel I found very faint indications of former abodes, — so faint that I could not determine what kind of buildings had originally stood on the spot. The pottery fragments were white or gray, decorated with black lines, and plain gray ware.

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[1] 10,093 feet above the sea level.

I was informed at St. John's that the old acequias, which I have mentioned, had formerly been lined with some cement-like composition, every trace of which had vanished when I saw the place in 1883; but I believe that the statement is true, and my reasons will appear later.

The ruins in the country north of the Sierra Blanca lie along the few watercourses, and are separated from each other by expanses of varying widths and of singular bleakness and aridity. Twenty miles intervene between the small clusters about the Cañada del Venado and the indistinct ruins near St. John's; seventeen miles between the latter point and the Concho stream, with its caves and pueblos; fifteen to twenty miles separate St. John's from the ruins about the Valle Redondo and Springerville to the south; and the nearest point to the east where vestiges of sedentary occupation are found, Tule, lies at least twelve miles away. Along the streams tributary to the Little Colorado River the ruins appear sometimes isolated, again in groups and clusters, and two types of architecture are plainly distinguishable.

My investigations were first carried on at the place called Tule, fourteen miles east of St. John's. Tule and Tusas lie only a short distance from each other, and in the same gorge or narrow valley, which is irrigated by a stream of considerable dimensions. But here, as well as everywhere else in the Southwest, this sinks at a certain distance from its mouth. Where I examined it in April, it ran quite rapidly. Tusas is a beautiful spot; the forests are not more than two miles off; the soil is fertile, and where it is not cultivated grass grows tall and abundant. Volcanic rocks jut out along the border of the valley, and the rim is formed by steep though not high mesas, which impart a picturesque aspect to the landscape. In one of these rocks a sacrificial cave was discovered by Mr. Cushing, from which many valuable objects have passed into private collections or into the National Museum at Washington.[1] I examined the narrow fissure in which most of the specimens were found, and obtained from it a number of plume-sticks (prayer-sticks), fragments of baskets, and a sandal made of yucca leaves and similar to those which were found in the Tzé-yi and on the Upper Gila. Near this cave is a small-house ruin, having a courtyard attached to the building. The pottery of all the ruins at Tule and Tusas is of the ancient kind, with much corrugated ware handsomely finished.

These small-house ruins are side by side with communal pueblos, and both kinds of architectural types are accompanied by the same class of potsherds. On Plate I., Figures 36 and 37, I have given ground plans of the pueblo ruins at Las Tusas. It will be seen that they belong to the most compact class, being composed of only one house in each case. The pueblo at Las Tusas is somewhat larger, and has been partially excavated, the Mexican inhabitants having opened the rooms of the old village, repaired them in a measure, and roofed and plastered them anew. In this ruin I noticed the traces of at least one circular estufa. Stone hatchets and axes were very abundant in this locality. The valley is so fertile and well watered that we need not be surprised to see at least three small communal villages along the course of the stream within three miles. None of them could have sheltered over two hundred inhabitants.

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[1] In this cave Mr. Cushing found a wooden fetich or idol in the shape of a snake, with the head painted red and the body green. In Chapter VII. (page 325) I have spoken of similar finds, one on the line of the Atlantic and Pacific Railroad between Coolidge and Fort Wingate, and the other in the caves at Mangus Springs on the Gila.

I had heard of ancient irrigating ditches in this locality said to be laid in cement, like the one at St. John's of which I have spoken. To my surprise, I saw, while passing through Tule, the remains of two of these "lined" canals, which are undoubtedly ancient, and the lining of which is undoubtedly artificial. One of them is a trough sunk in the ground, 0.25 m. deep, 0.76 m. wide, and lined with solid concrete varying in thickness between 0.08 and 0.12 m. This trough was not connected with any rock, but imbedded in movable soil, and the concrete resembled ferrugineous sandstone, or limestone, and was apparently crystalline in parts. I brought two specimens of this concrete to the Peabody Museum at Cambridge, begging for an analysis of it, but I have not learned whether it has been made. The other channel is a flat trough, 1.30 m. wide and 0.20 m. thick, resting on partly decayed slabs of the rock cropping out in the vicinity, and laid on the ground. At first I supposed the channels were made of stones joined together in the common way, but had to come to the conclusion that it was some kind of artificial compound, sunk into the soil where the ground was too high, and laid on top of it wherever it was too much depressed, so as to avoid both cutting and filling. I append a sketch of these singular contrivances, adding that they were noticed long before me by members of the United States Geographical Surveys.[1] I also heard that at Ahua-tuyba pipes and channels made in a similar manner had been found. There would be nothing strange in this, since Ahua-tuyba was a pueblo inhabited until 1700, and such an advance in contrivances for irrigating might be attributed to Spanish influence, but the same reasons do not obtain at Tule. The ruins there are strictly prehistoric, perhaps even pre-traditional, and they were certainly abandoned previous to the sixteenth century.

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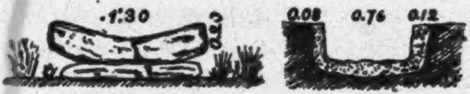
[1] *Annual Report of the Chief of Engineers*, 1879. Part III., Appendix O O (App. E), p. 2220. Lieut. Rogers Birnie says: "A Mexican living at Tule Spring



ARTIFICIAL CHANNELS AT TULE.

Only an analysis of the concrete could give an accurate idea of the degree of progress which these artificial channels imply. The other artificial objects found with the ruins do not differ at all from Pueblo culture in general. The corrugated pottery is of handsomer make than that of more northern and extreme eastern ruins, but it cannot compare with that of San Matéo and of the Mimbres region. Stone implements are neither better nor worse than common, and the fictile work is of the same kind as that found in caves, inhabited or sacrificial, in various parts of the Southwest.

Dreary levels, grassy and bleak, separate Tule from the head-waters of the Rio Concho, and the distance is about seventeen miles. On these expanses no antiquities can be

is now using to irrigate his land a ditch of stone. The water used is derived from the Tule Spring, and the ditch has been so long in use that it is, so to speak, fossilized. The present owner knows nothing of who made it, and, with reason, attributes it to the old inhabitants. Lying on the surface of the ground near by are the remains of another ditch, the segments of trough-shaped stones being in position for one hundred yards or more." It is to be noted that the settlement at Tule is of quite recent origin.

expected. At the Concho settlement, however, several ruins and sacrificial caves exist, which, owing to the inclemency of the weather, I could not investigate. From what I heard, I infer that the ruins belong to the communal type; small houses are also reported as existing in that vicinity.

Between the sources of the Concho and the settlement of Show-low, on the northern confines of the Apache reservation of Arizona, the country is one of monotonous mesas of lava or trap, destitute of trees as well as of permanent water, except where, in its western sections, several streams flow towards the Little Colorado River. Antelopes roamed there a few years ago undisturbed. We long for the pine groves that loom up along the base of the Sierra Blanca, and the eye rests with pleasure on the sharp profile of the San Francisco Mountains in the distant northwest.

Ruins of pueblos or of small-house villages, also remains of ancient irrigating ditches, are said to exist in the vicinity of Round Valley and Springerville. The important ruins at Carrizo lie in close proximity to those of Tule, but can be merely mentioned here. In short, the mountain group of the Sierra Blanca contains, and is surrounded by, a number of ruins of aboriginal settlements of very ancient date, concerning which the Zuñi and Moqui traditions, those of the Pimas and perhaps of the Opatas also, and possibly the folk-lore of the Apaches, may afford some light.

In the first half of the sixteenth century the whole of Eastern Arizona, from the Sonora boundary as far north as the Moqui pueblos, was devoid of permanent Indian villages. Fray Marcos of Nizza visited the Sobaypuris, a branch of the Northern Pimas, in the San Pedro valley.[1] In a measure those Indians were sedentary; but their dwellings were not more permanent than those of the Pimas are to-day. North of the

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[1] *Relation*, p. 269 *et seq.*

Gila a wilderness extended to the Moquis, and the friar does not speak of the Apaches as roaming over that region, whereas in the following year they were noticed by the members of the expedition of Coronado. Castañeda, speaking of the country along the Gila and north of it, says: "The inhabitants are the most barbarous nation as yet found in those regions. These Indians dwell in isolated huts, and subsist by hunting alone: all the rest of the country is deserted and covered with pine forests."[1]

It is therefore safe to look upon all the ruins of Indian villages in the section embraced by this chapter as prehistoric, and no clue exists to the tribes by whom they were built, or to the cause and manner of their abandonment.

Two distinct types of construction are represented in the Apache reservation, the compact pueblo village and the small house, the latter connected with a courtyard or enclosure of stone. The former type reaches only as far as the environs of Fort Apache, or a little north of 33½°, that is, the same latitude as San Marcial in the Rio Grande valley. It seems therefore that in Arizona as well as in New Mexico the area of communal structures is bounded in the south by the same parallel of latitude.

Extensive pine woods cover the flanks of the Sierra Blanca. In the north they begin at Show-low, or north of latitude 34°; southward they extend to Rocky Cañon, or latitude 33½°. Their eastern limits I cannot define with accuracy; to the west, it is certain that they reach longitude 110½°. The highest summits, Thomas Peak[2] and Ord's Peak,[3] are bare of trees.[4] All this forest region is well watered by clear mountain brooks, the most northerly of which, like the

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[1] *Cibola*, p. 162.

[2] 11,496 feet high.

[3] 10,266 feet high

[4] The forest line on the Sierra Blanca is 11,100 feet. Ord's Peak lies below it; still the summit is bald.

Colorado Chiquito, Show-low Creek, and the La Plata, belong to the drainage system of the Great Colorado; while the others, which on their main course run from east to west, like the Sierra Blanca rivers and the Rio Prieto, form the great Rio Salado, a tributary of the Gila; and those south of the Prieto, Eagle Creek, the Gila Bonita, Ash Creek, Sycamore Creek, all unimportant streamlets, flow directly into the Gila. The valleys are narrow, often with precipitous sides, fertile bottoms alternating with picturesque gorges. Woods are everywhere close at hand. The yucca plant, important to the natives both for food and for industrial uses, is very abundant. On the whole, it is a region extremely suitable for a sedentary Indian population. But the winters are cold, and snow falls often and in large quantities. The average elevation above sea level being over five thousand feet may explain why the specifically pueblo architecture was still adopted by some of its ancient inhabitants. But the beauty of the region, and its abundance of game and fish, also explains why it may have been coveted both by sedentary and roaming Indians, and in such a struggle the latter always ultimately prevail.

At Show-low the forest region covers the northerly spurs, and a little creek meanders through a valley which in its narrowness still presents a bleak appearance. On the south side of this arroyo stands the ruin, shown on Plate I. Figure 38, which is that of a communal pueblo consisting of two houses with one circular estufa. The walls are 0.20 m. thick, built of sandstone, and only the foundations remain. Situated on a rise above a fertile bottom, this pueblo occupied a good position both for agriculture and defence. Among the artificial objects I noticed nothing unusual except the pottery, which resembles that at Tule. There are specimens with glossy decorative lines, but the glaze is more carefully applied, the designs are more perfectly executed, and the corrugated and indented pieces especially are of superior workmanship. Indented and corrugated specimens, painted red, and similar to those found at San Matéo and on the Rio Grande at San Diego, are quite common, and here I saw for the first time corrugated sherds, painted outside with patterns of a symbolic origin, the painted lines being applied without attempt at harmony with the plastic appearance of the surface. A quarter of a mile south of the dwellings of Mr. Huning and of Mr. C. E. Cooley, to both of whom I am greatly indebted for their courtesies and kind assistance, are small-house ruins, the rooms of which, while not numerous, are comparatively spacious, having a courtyard attached to them. The stone used in the construction of the houses is sandstone and lava rubble. Although these ruins are of a distinct type from those first mentioned, the pottery is identical; but the sherds appeared more deteriorated, as if the ruin was of an older date. Such may be the case, but the degree of decay alone is no criterion. Small ruins crumble and turn to rubbish more rapidly than large ones, and moreover the large pueblo has been frequently disturbed by relic hunters, and potsherds have been brought to the surface from below, thus presenting a better appearance.

While at Show-low I heard of ruins on the La Plata, not far away, but could not ascertain to what type of construction they belonged.

From Show-low I reached Fort Apache, the main military post of the reservation, situated in latitude 33½°, and at an altitude of five thousand feet above the Gulf of Mexico. I copy from my diary of April 19, 1883, the following description of the road which I had to follow: —

"We rose, from an altitude of 6,100 feet at Cooley's through stately forests of pines, — splendid, straight trees, all *Pinus ponderosa.* The road goes over high mountain ridges, wooded on all sides, and in the distance an occasional glimpse is caught of the snow-clad tops of the Sierra Blanca. The reservation begins about seven miles from Show-low, near Clark and Kinder's Ranch, and the wild, heavily wooded mountain scenery, with an occasional rivulet, closes in upon all sides. A new species of juniper appears as we near the highest point of the Mogollones, as this spur of the Sierra Blanca is called. The divide is 7,400 feet high, and the descent is steep and tortuous. All along, the soil is very good, and the wheel-tracks are deeply worn in a dark loam. But the lava scattered all over it makes the road very rough. The highest point is about seventeen miles from Show-low; thence we reach White River. The grass becomes fresh and green; oaks appear, leafless yet, and the evergreen 'encino,' in tall specimens. To the left of the road patches covered with excellent grass skirt the cañon of the river, which runs about east-northeast to west-southwest in a rocky cleft with vertical sides, the rock of which is hard black and gray lava. But on the right side of the road the slopes are often vertical buttresses of red sandstone, rising at least a thousand feet. Dark pines sweep up past perpendicular cliffs to the shaggy crest. Eight miles from Fort Apache lay the old ranch of Mr. Cooley. The river is at the foot of the cliffs, and at least four hundred feet beneath the road, and the forests are skirted in places by fertile bottoms, in one of which his house stood. The bottom is scarcely five feet above the river, grassy, with fine soil, and acequias run through it. Pueblo ruins [Plate I. Figure 39] stand close by the old house. They are built of whitish hard lava, and appear like a shapeless rubbish mass, about ten feet high. The pottery is finely corrugated, indented, and painted black and white, and gray and white. Some pieces are unusually thick, and on others the corrugations are very delicate. It bears much resemblance to the pottery of the pueblos of Show-low, but the corrugated ware, which largely predominates, is of finer, more intricate design. There are the usual patterns of black on red, and there is black and red plain, but no glossy specimens. The ruin is evidently very old. It is in a well sheltered situation, and the sun shines into the bottom only from the south. . . . On the plateau above, about half a mile from the brink of the cañon and beneath trees, lies another ruin. Its appearance is about the same, also the pottery. Trees have grown in it, one of which is six feet six inches in diameter. The other trees are encinos, about nineteen inches to two feet in girth.

"Soon after leaving this spot, the valley opened and presented a most beautiful appearance. The grass is green, *Verbena communis* in bloom, and junipers and oaks in groves. The mountains around, rising to one thousand feet and higher, are clad with pine forests up to their rocky tops. The red sandstone gleams through the trees in precipitous cliffs. There is verdure and life everywhere, in beautiful contrast with the bold crags and the deep cleft of the cañon of White River, a roaring mountain torrent, with waters milky to-day, but generally clear and limpid."

Fort Apache lies at the junction of the north and east forks of the White Mountain River, in a fine situation. High mesas line the valley, which bears luxuriant grass, tall yucca, junipers, and oak. In the west, a glimpse is caught of Kelly's Butte, a dome-shaped peak; in the east rise the summits of the Sierra Blanca. On both sides of the river for several miles, either on the banks or on flats extending some distance inland, stand aboriginal ruins of both types of architecture. One of them, a compact pueblo, is shown on Plate I. Figure 40. It lies about two miles east of the post, two hundred meters south of the stream, and an embankment, denoting an old river bed, is visible between the ruin and the river. The pueblo forms a hollow rectangle, with no perceptible ingress on the ground floor. It was not over two stories high, and the cells are small, though larger than the majority of those in more northerly ruins.

The stone axes are of the kind peculiar to the southern parts of the Southwest, that is, with the groove only on three sides; the metates are rude and show no signs of particular workmanship, and the pottery displays the handsome ornamentation already noticed at Show-low. This latter feature cannot be due to local influences only. The material and the pigments, their greater variety and superior quality, depend of course upon the presence of mineral matter; but the delicate plastic ornamentation and the habit of painting the corrugated and indented surfaces, result from an advance distributed over a vast extent of territory.

One of the largest ruins, if not the largest in the Apache reservation, lies at the upper end of the Cañada del Carrizo. Its distance from the post I estimate at about five miles in a westerly direction. It stands on both sides of a dry torrent, in the bed of which pines are growing. Still it does not appear that, as at the Pueblo Largo in the Galisteo region, this arroyo has been excavated since the village was built. As at Abó, the arroyo was there before the pueblo was constructed. While it is not improbable that the buildings were contemporaneously inhabited on both sides of the torrent, it is by no means an absolute certainty.

The condition of the ruin was such as to leave me in doubt whether the houses were more than one story high. Some of them may have been two-storied, but it seemed that one story was the rule. On the whole it reminded me much of the pueblo at Cebollita near Acoma, but the stone-work was not so handsome. The ruins on both sides of the arroyo are nearly equal in size; I computed the western one to have accommodated one hundred and six families, the eastern ninety-one, or from three to four hundred souls each. If the occupation was simultaneous, this would indicate an aggregate population of not more than eight hundred souls.

This village appeared to be a compact small-house settlement, and there are, outside of each of the two groups, scattered smaller buildings; but they are in too close proximity to the main clusters to suggest summer ranchos only. The wide vale on which the ruins are situated is without water for irrigation, and I did not observe any provision made for storing, nor did I notice estufas.

About ten miles to the west from these ruins, I was informed, there stood a watch-tower, and I was also told of an interesting ruin on the summit of some prominent butte. As to the mesas that line the valley in which Fort Apache is constructed contradictory reports reached me; but I think there can only be isolated buildings, and perhaps towers, or enclosures for retreat and observation. A serious injury to my left foot prevented me from attempting any climbing, or I should have made the ascent and satisfied myself of the exact condition of affairs.

East of the post, and several miles higher up the east fork of White Mountain River, the country becomes so rugged that no pueblos can be expected there. I diligently inquired for cliff-houses and cave dwellings, but obtained no satisfactory information. In the west, the river, after the meeting of its two branches, enters the deep cañones through which it flows to its junction with the Rio Prieto, or Black River, to form the Rio Salado. In these cañones cliff-houses, cliff burials, and partitioned caves have been examined and reported upon, to which I shall refer further on.

Before turning to the interesting remains on the Arroyo del Carrizo, I would remark that the description of the Apache reservation furnished by the chroniclers of Coronado is so clear as to permit the identification of all the main streams that flow through it, the Gila, strange to say, excepted. Even the Gila, if we consider the changing nature of its volume of water, can be identified by the statements of Juan Jaramillo; but the Rio Prieto, White Mountain River, and the streams about Show-low are clearly indicated.[1] This leads to the inference that Coronado marched very nearly on the present route from the Gila to Fort Apache. He, as well as Fray Marcos of Nizza, found no permanent Indian settlements, which corroborates the testimony of the ruins, that they are of quite ancient date.

The Carrizo lies about twenty-five miles north of west from Fort Apache. Its waters are tributary to the Rio Salado, and enter that stream below its formation by the junction of the Rio Prieto and the White Mountain. Passing east of the prominent height known as Kelly's Butte, the trail first winds between high wooded slopes occasionally crowned by crags. Vegetation is comparatively vigorous; the yuccas and opuntias grow in tall specimens, and one variety of plati-opuntia especially assumes large proportions. Towards Cedar Creek the valley narrows to a rent, cedars, oaks, and encinos clustering about the trail, with tall pines interspersed. From the crest, which lies about eight miles from Fort Apache, a wide view is enjoyed. To the west a vast undulating basin stretches, bounded by a range of high mesas. The soil is fertile, groves appear, and in the centre rises a perfectly conical peak of black lava. East of it is a huge black lump (Mogote in Spanish) of the same rock. Mesas with cliffs of red sandstone border the basin in the north, northeast, and east. Almost through the centre runs Cedar Creek, a narrow trough, containing water, and groves of noble cottonwoods. Along the western border of this basin Carrizo Creek flows in a deep cañon, the fertile bottom of which is half a mile wide in places. Gorges run into it at right angles, with small brooks in them. Cedar Creek is the only water between White Mountain River and the Carrizo; and the descent into the bottom of the last is very steep.

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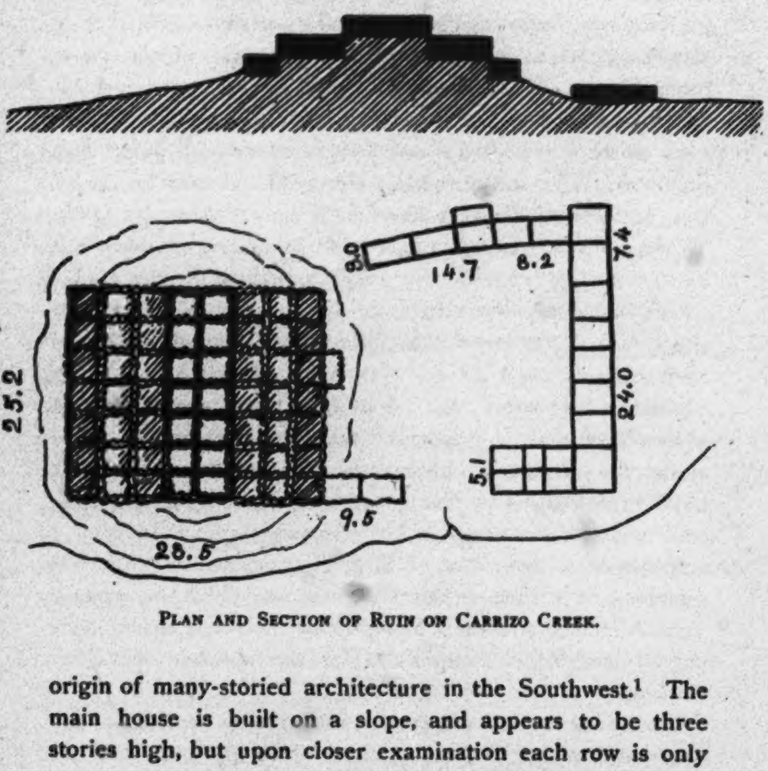
[1] Jaramillo, *Relation*, p. 368 *et seq.* The "Rio de las Balsas," which the Spaniards had to cross on rafts, must have been the Gila; but Jaramillo is the only chronicler of Coronado's expedition who mentions it. The "Rio de la Barranca" is clearly the Prieto; the "Rio Prieto," White Mountain River; and the "Ruisseaux Frais," or cool creeks, are the streamlets about Show-low, since he says that they were met with at the northern end of the extensive pine forests: "à l'extrémité de laquelle nous trouvâmes des ruisseaux frais." The next watercourse was the "Rio Vermejo," so called on account of its reddish waters, which was two days' march from Hauicu. This corresponds to the distance from the Little Colorado to that village, if we consider that the Spaniards marched very slowly owing to the exhausted condition of their animals.

On the morning of the 2d of May, 1883, when I glanced at the landscape as it appeared from the cottonwood groves along the Carrizo, it presented a charming appearance. A light haze hung over the grassy vales and wooded slopes, and for the first time in my Southwestern experience I was reminded somewhat of English scenery. But the only human beings that at rare intervals enlivened the picture were Apaches, and their half-globular huts and scanty corn patches could not compensate for the absence of higher cultivation.

On a natural platform, grassy, with a steep declivity to the south and a high hill rising above it in the east, near the junction of two creeks running into the Carrizo, I examined the pueblo ruin of which I annex a sketch. The Apaches have greatly injured its appearance by using the stones of its walls for the construction of their semicircular shelters roofed over with boughs. An ancient acequia traverses the triangular bottom at the southern end of the ruin. The interest attached to this ruin consists in its being somewhat like an illustration of the theory of Mr. Cushing about the origin of many-storied architecture in the Southwest.[1] The main house is built on a slope, and appears to be three stories high, but upon closer examination each row is only



PLAN AND SECTION OF RUIN ON CARRIZO CREEK.

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[1] *Pueblo Pottery* (Report of the Bureau of Ethnology, 1882–83, p. 477). Mr. Cushing's views, however, require "the employment of rafters and the formation of the flat roof, as a means of supplying a level entrance-way and floor to rooms which, built above and to the rear of a first line of houses, yet extended partially over the latter." There is no trace of such overlapping at the Carrizo.

one-storied; since, as they are erected on both slopes, they rise successively, and thus present the appearance of three tiers superposed.

The number of persons which this ruin can have sheltered is small, not more than one hundred at most. The usual objects found are mortars of lava, and concave metates are quite common, but there is very little obsidian and flint; painted potsherds, like those found at the ruins near Fort Apache, are abundant, but corrugated and indented pottery is scarce.

About sixty meters west of the ruin stood an isolated small building measuring 3¾ meters from east to west and 4 meters from north to south. It was open to the south, and appeared as if there had never been any roof on it. I was forcibly struck with the resemblance of this little structure to the so called "Sun-house" at the ruins of Matzaki in the Zuñi country, which is still in use for rude astronomical purposes, and the erect slab of sandstone standing in it has the circular face of the sun, with eyes and mouth carved on its surface. Stone fetiches consisting of natural concretions are arranged in front of the image. The building at the Carrizo is of course empty, but its appearance suggested to me the idea of its having possibly been a sun-house. But very probably it was merely a rectangular guard-house, although it was never over one story high. Its situation is well suited for a place of observation.

I am not informed in regard to ruins farther west, along the course of Cibicu Creek, a more westerly tributary of Upper Salt River. About the ruins reported to exist on the latter stream I have already made a short statement, and must defer further mention to another chapter of this report, and will only allude to the deposits of rock salt from which the river derives its name. They lie in a region not easily accessible, and have been visited only by a few persons. The Spanish exploring party under Garcia Lopez de Cardenas, on their return from the journey to the Grand Cañon of the Colorado River, reported that "on their march they arrived at a cascade that fell from a rock; and the guides said that the white crystals hanging around it were of salt. A quantity of these were gathered and distributed at Cibola, where everything was told to the General."[1]

It is not clear whether the Spaniards returned by the way of Moqui, or whether they took a more southerly route. If the latter were the case, they may possibly have reached the rock-salt caves on the Upper Salado.

South of Fort Apache a high plateau extends as far as Rocky Cañon, beginning with the bare stretch of "Seven-mile Hill," through which runs Turkey Creek with a permanent water-flow. Beyond are the forests which line the course of the Rio Prieto, or Black River. This latter stream is evidently the "Rio de la Barranca" of Jaramillo.[2] It constitutes the main branch of Salt River, rushing and seething through a narrow cleft bordered by picturesque rocks, on which vegetation improves every possible foothold afforded either by slopes or by the river banks. This river has beautifully clear water, but the country is so mountainous and broken as to preclude all possibility of its occupation by agricultural aborigines except perhaps as a temporary refuge. I could not obtain any information regarding ruins between the Prieto and Rocky Cañon, and as the whole plateau is wooded I infer that there are none. Farther south, along the tributaries of the Gila, especially on Eagle Creek, ruins again appear. Cliff-houses, and, I am told, large pueblos also, have been examined on the latter. If the statement as to the pueblo ruins is correct, it would place the southern limit of the compact communal type of houses about half a degree of latitude farther south than I have allowed for this section of Arizona. But it is not impossible that these ruins belong to still another type, of which I shall speak in connection with the regions of the Gila and Salado Rivers. On the Gila Bonito, another tributary of the main Gila which runs almost parallel to Eagle Creek, cliff-houses are known to exist. I was unable to penetrate to these northern confluents of the great artery of Southern Arizona. My attention was directed to the peculiar culture, evidenced by a peculiar architecture, which the ruins along the Gila as well as those along the Salado denote. I therefore journeyed towards San Carlos as directly as possible. After I left the shade of the pine woods on the brink of Rocky Cañon, it appeared as if I were looking down upon another world, so different was the vegetation, so distinct the sky, from what the region which I was leaving had presented to me.

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[1] *Cibola*, p. 64.

[2] *Relation*, p. 368.

X.

THE GILA, SALADO, AND LOWER VERDE RIVERS OF ARIZONA.

FROM the brink of Rocky Cañon the view to the south is of singular bleakness. An arid valley or basin lies below, and in it a line of scattered cottonwoods indicates the course of Ash Creek. Beyond, the ground rises to the bald crests of the Gila range. Bare peaks loom up in the west; denuded summits, dim with haze, in the east; in the south two towering mountains appear in the distance. A complete change takes place in vegetation. Cactuses and the mezcal agave dot the valley. On Ash Creek there are traces of small-house ruins, but so faint that I do not reproduce their outlines.

From Ash Creek Station to the former Apache subagency on the banks of the Gila the distance is a little over twenty miles, and the decrease in altitude amounts to more than three thousand feet. It is at least as great, if not greater, from Queen's Gap, which is only twelve miles from the Gila in an air line.[1] From that point on, the peculiar flora of Southern Arizona crowds the trail. Every shrub, every plant, is thorny and spiny. The thickets are composed of huge Echinocacti, monstrous Opuntiæ, *Fouquiera splendens*,[2] *Prosopis juliflora*, and zahuaros, gigantic columnar Cerei of

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[1] The elevation of the springs near the brink of Rocky Cañon is given at 5,697 feet. The subagency lies 2,597 feet above the sea.

[2] Called Ocotilla in Spanish.

Arizona, which tower above the slopes and crests in the distance like telegraph poles. The change in a few hours from the pine forests of the north to this sub-tropical land is exceedingly striking. When, on the afternoon of the 9th of May, 1883, I began to descend the southern declivity of the Gila range, all this vegetation of uncouth plants was covered with the fairest blossoms. The Echinocacti were crowned with wreaths of white; the Opuntia displayed large flowers of pink, scarlet, orange, and white; the mezquite was loaded with drooping clusters of yellow; the Fouquiera blazed with tall spikes of crimson; the zahuaro was beginning to display its coronets of white blooms. It was a maze of flowering monsters, all very forbidding, not only in appearance, but on account of the dangerous spines and thorns with which they defy approach. I felt then that the animal life must be in harmony with this strange flora; that these jungles must be a fit home for the ugly mygale, the scolopendra, the scorpion, and the much dreaded though really harmless Gila monster.

No ancient remains are known to me in this region, except those along Ash Creek. In the cañones of the San Carlos stream, cliff-houses are said to exist; the slopes are too steep, too arid and rocky, for the dwellings of man.

After nightfall I camped on the Gila River under the shade of tall cottonwoods. The air was still, clear, and pleasantly warm. The front of Mount Turnbull loomed up in the moonlight like a huge phantom; camp-fires of Apaches glimmered along its base; and from the tree-tops the voice of the mocking-bird rose, clear and endlessly modulated in the stillness of the beautiful night.

The bottom of the Gila is not wide; arid mountains line it on both the north and the south. Two towering masses, Mount Turnbull and Mount Graham, rise abruptly on the south side of the narrow valley, the latter to an elevation of 8,000 feet above the river.[1] Their slopes are partly perpendicular, and mesas jut out along their base. The valley is sandy, and the sunlight is reflected with a dazzling glare from the white ground. Even in May the thermometer mounts to one hundred degrees and above. When the wind sweeps through this trough, it raises formidable clouds of dust, which clothe the spiny vegetation and the cottonwoods with a grayish hue. Thus the Gila valley presents no prepossessing appearance; the mountains are arid and forbidding, the valley itself hot and dreary; yet it is fertile where irrigated, and the Gila stream has a sufficient volume of water. For an agricultural Indian population, it was a region worth living in, and worth holding on to as long as possible. But many portions of it are malarial, especially the vicinity of Fort Thomas, and it may be remembered that Fort Goodwin, which stood near the latter post, was at least partially abandoned on account of its unhealthy location.

Winters are very mild; snow falls occasionally, but never lasts. The general climatic conditions are such as to compel the native to afford more space and air for his abodes. The communal or honeycomb clusters of buildings would have been almost uninhabitable, at least in summer, and summers last long on the Gila. A new variety of buildings had to be devised to make the sedentary Indian comfortable.

I have already spoken of the ruins on Eagle Creek and other northern tributaries of the Gila, like the San Francisco River. I have not been able to visit San José del Pueblo Viejo and Solomonsville, but from descriptions I conclude that the architectural remains there are like those at San Carlos, and that at the former point there existed a comparatively extensive ancient settlement. Vestiges of acequias are still visible, and the pottery resembles that from the vicinity of Fort Apache.

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[1] The altitude of Mount Graham is 10,516 feet; Mount Turnbull is lower.

I regret my inability to explore these sites, but much more so that of the ruins at Fort Grant on the southern foot of Mount Graham. All I know about them is that they exist, and that the soil there is of a reddish color, and that pine forests begin in the vicinity. These are points of historical interest. When Coronado marched into Arizona from Sonora, he passed a place which he (or Fray Marcos of Nizza) called "Chichiltic-Calli," a word which in the Nahuatl language of Central Mexico signified "the red house." That ruined building has heretofore been identified with the well known aboriginal ruins of Casa Grande on the Gila, one degree of longitude farther west.

I have carefully studied all the original authorities upon Coronado's march, which have fallen within my reach, and I have also investigated those portions of Arizona through which Coronado may have passed, with the special object of solving if possible the question of his exact route.

In the preceding chapter I have stated that the Spaniards traversed the Apache reservation, at least from the Rio Prieto to Show-low, and thence reached the Little Colorado and Zuñi streams. To get to the Rio Prieto without crossing the Gila is impossible for any one coming from the south; to reach the former from Casa Grande is possible, but only by excessively long detours, and through a country whose appearance by no means agrees with that described by the chroniclers of Coronado. Neither does the picture of Chichiltic-Calli and of its environs in the least conform to Casa Grande or its surroundings. Castañeda, who is the most explicit of all, speaks of Chichiltic-Calli in the following terms: —

"When the general had traversed all the inhabited country as far as Chichilticale, where the desert begins, and had seen that there was nothing good in it, he could not resist a feeling of sadness, although many marvels were promised to him further on. Nobody had seen them except the Indians who had accompanied the negro, and it had already been found several times that they lied. He was particularly disappointed in seeing that Chichilticale, of which so much had been told, was nothing but a ruined house without roof, which, however, appeared to have been fortified. It could be seen that this house, built of red earth, was the work of people who were civilized and had come from afar."

Further on he writes: "The name of Chichilticale was formerly given to this place, because the priests found in the vicinity a house that had been inhabited for a long time by a people that came from Cibola. The soil of that region is red. The house was large, and appeared to have served as a fortress. It seems it was anciently destroyed by the inhabitants."

Again in another place: "At Chichilticale the country is no longer covered with thorny trees, and its aspect changes."[1]

The soil around Casa Grande is of a glaring white, vegetation is particularly thorny, and remains so for a long distance towards the north. The few mountains where Conifers grow are distant, and their aspect no different from that of ranges farther south. The description of Castañeda cannot, therefore, apply to Casa Grande.

Jaramillo is less detailed and more confused. Still it is clear, especially from his statements regarding the water-courses, that the Red House could not have been Casa Grande.[2] That ruin is perfectly white at present; it may have been once covered with a reddish paint, but I failed to notice any trace of it on the outside. Part of the roof must have still been in existence in 1540, for I was informed that the Apaches burnt the last remnants of it.

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[1] *Cibola*, pp. 160–162.

[2] *Relation*, p. 368. He does not mention the ruin, but speaks of a mountain chain called "Chichiltic-Calli."

It is certain that Coronado marched up the Sonora River very nearly to its source, and thence either across to the San Pedro valley, or else to the Santa Cruz. In case he chose the latter route, he would have had to contend with much greater difficulties in regard to water, and would besides have left the Indian settlements, which are what Castañeda means by "inhabited country," much sooner. The Sobaypuris had their villages within a short distance of Arivaypa Creek, and the latter flows not far from Fort Grant. Everything, in my opinion, points towards the latter place, or to some spot in its neighborhood, as the locality where Coronado passed, and where Chichiltic-Calli, the Red House, stood in 1540. As three centuries and a half have elapsed since, in a climate much more humid than that of the Gila, it is not improbable that the ruin may have become reduced, at the present day, to mere rubbish mounds.

At Fort Thomas I examined the ruins shown on Plate I. Figure 42. They are distinctly of the small-house type, and rows of stones indicating low enclosures connect the mounds that denote former buildings. There I received the first impression of the peculiar checker-board arrangement of which I have already spoken in Chapter VII. in connection with the ruins on the Mimbres and the Upper Gila of New Mexico. The remains about Fort Thomas are much decayed, so that it is almost impossible without excavation to re-establish the connecting lines. It struck me that the amount of stone rubbish lying about was quite inconsiderable, and that the mounds, though low, seemed to consist of compact earth. This suggested the thought that the houses, except their foundations, might have been of adobe. I was confirmed in this supposition by descriptions which an old resident gave me of the ruins at Pueblo Viejo. The largest mound at Fort Thomas measured 14.7 by 13.2 meters (48 by 43 feet), and one of the sides of an enclosure was 22.5 meters (74 feet) long.

With these ruins there was an elliptical depression with a raised rim or border about six meters in width. The dimensions of the basin or hollow were 34⅛ by 14¾ meters (190 by 48 feet); its depth was inconsiderable. This structure I can only suppose to have been a tank. The artificial objects bore the usual character, and the pottery was the same as at Fort Apache.

About eight miles to the east of Fort Thomas I investigated another ruin of the same type, and of nearly the same size. The enclosures have left but faint traces, but I found distinct remains of an old irrigating ditch running past the village, with branches entering its site. I followed this ditch for a length of 350 meters (1,150 feet), and found it to be on an average two meters wide, the extremes being 1¼ and 3 meters. The sides were raised from 0.15 to 0.20 m. (6 to 8 inches) above the surface. The soil of the bottom through which this acequia runs, where the ruin is situated, is whitish, sandy, and movable, but appears to be very fertile.

The acequia runs almost at right angles with the course of the Gila River, and towards, not from it. It descends from the base of the foot-hills of Mount Graham, from which living streams issue, but sink at a distance of five or six miles from the river's edge. The ditch in question cannot have been made for the purpose of carrying the waters of the Gila up hill, and there is no visible source inland from which it could have been fed, nor is there any sign that formerly the arroyos flowed farther down than to-day. It was only long afterwards, in the neighborhood of Casa Grande, that I learned the real object of these acequias, which descend from the mountain slopes to the low lands.

In the vicinity of Maricopa, the Maricopas Indians especially use such acequias to-day. They build them from the bare mountain slopes into the valleys where their fields are located, with the object of catching the mountain torrents which descend for a short time during and after every shower, and of leading them to their crops, which otherwise would not receive a drop of the moisture that falls almost daily on the high crest during the rainy season. The Gila River is very irregular in its volume of water, much more so than the Rio Grande, and it is lowest during those months when irrigation is most needed. Hence arose the device of using the mountain torrents for purposes of irrigation, of which the acequia east of Fort Thomas is probably an example.

All these remains are found on the south side of the Gila River, and on the opposite bank I have heard of at least three more. I also heard of one south of the last described ruin, and of vestiges near the site of old Fort Goodwin. But the settlements are all of small extent, hardly capable of sheltering a hundred people each, and generally are several miles apart. Their condition is very ruinous, and suggests, from the growth of mezquite trees in the rooms, and of very large mammillary cactuses, considerable age. Abrasion by floods from the mountains, as well as the climate, should also be taken into account as obliterating agencies.

The metates which I saw at the ruin last investigated were quite large, and made of black lava. Obsidian and arrowheads of flint appeared frequently, and I saw a convolute shell, perforated at the apex, which had been taken from one of the houses. A block of stone about 0.75 m. (30 inches) long, and roughly worked in a manner suggestive of an idol or fetich with human shape, was also shown to me.

Groves of cottowood line the banks of the Gila between Fort Thomas and San Carlos. The soil is of the usual dazzling whiteness; thorny plants are scattered over it, and bunches of grass. Where the road from Fort Apache crosses the river I found several small-house ruins, with connected enclosures. In these the difference between the building with its three rooms, and the enclosures or courts, was especially plain. Pottery and other objects show much decay. The walls of the house have a thickness of 0.61 m. (2 feet), and are made of two parallel rows of stones or rubble set on edge, with traces of a filling between them. Such foundations suggest that adobe was superposed to them.

The present Indian Agency of San Carlos is not on a prepossessing site; it is very hot in summer, and the shade of the trees on the river banks does not extend to the promontory on which large and commodious buildings are erected. But the site was a good one for an Indian village, inasmuch as there are fertile bottoms close by, and a clear view in every direction. The modern constructions stand on the ruins of a village of which I was only able to measure a part. The foundations are double in some places, in others single. The village, which must have covered much more ground than what I could survey, was therefore an aggregation of dwellings and enclosures. A mound 0.80 m. (32 inches) high, and 37 meters long by 16 broad (121 by 52½ feet), is connected with the other remains. Its surface is traversed by a double line of stone walls, showing that the rubbish mass once formed a house. This feature was new to me, and it suggested the existence of a larger central building, perhaps artificially elevated by means of an underlying platform, and connected with the rest of the settlement by walls of courts or squares. What few other buildings were visible were small houses resting on the level. The rooms of these are large in comparison with those farther north.

Soon after passing San Carlos the Gila enters a deep cañon, which extends with various interruptions nearly to the settlement of Riverside. The San Pedro stream joins the Gila in this narrow gorge, the walls of which are often perpendicular. I have heard that cliff dwellings only are found there, as the bottom is not wide enough for cultivation, or even for the construction of buildings. This information, which the appearance of the country corroborated, induced me to turn to the northwest, and to proceed towards Upper Salt River by way of Gilson's Flats and the mining district of Globe, with its vast deposits of copper ore.

I refer to Plate I. Figure 41, for the plat of the ruin five miles from San Carlos, in a bottom of similar appearance to all the flats or depressions along the Gila River. A tank measuring 23.4 meters (76 feet) across, and encased by a rim of stones, stands among the ruins. This feature seems to be common in that section of Arizona. The pottery is in all points similar to that of the other ruins.

After traversing quite dense forests for miles, Gilson's Ranch is reached, — a waterless valley bordered by dreary gravelly heights. In the west the Sierra Pinal rises aloft, covered with a fine growth of dark pines. All the rest of the mountain scenery is of forbidding ruggedness. Bare peaks stretch into the sky, and arid clefts and rents descend from their slopes. The only vegetation is that monstrous flora of cactus, mezquite, and ocotilla peculiar to the Southwest. To it must be added the "Palo verde," a leafless tree with green bark.[1] The smaller shrubs do not look so strange as the taller species, but they are equally well protected by thorns and spines.

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[1] Parkinsonia Torreyana.

On the arid heights around Gilson's Ranch several small ruins are met with, forming in all probability a variety of the class represented about Fort Wingate. One of them contained as many as seventeen compartments, but I could not detect any traces of enclosures. The walls were all double and about two feet thick, and it seemed that the superstructure had been of adobe. In the same vicinity I found distinct traces of an acequia with its branches, lying at the foot of the gravelly bluffs on which stood the ruins, and apparently made for the same purpose as the one on the south side of the Gila, east of Fort Thomas. The branches of this ditch were slightly raised above the surface, but the main acequia was slightly depressed. Pottery and other objects need no description, owing to their similarity to those found elsewhere in the district.

Twelve miles of country of the same type as around Gilson's, though with more trees, separates that place from Globe and its extensive workings of copper ore. The total ascent from San Carlos to Globe is fifteen hundred feet in twenty-one miles. Globe lies in a cleft between the Pinal range in the south and lower but rugged ranges in the north which separate it from the basin in which stands the town of McMillenville, and agricultural soil is not plentiful around it. A little creek, the Aliso, runs at the bottom of the rent on both slopes of which the town is reared. It is a tributary of the Gila, and assumes upon approaching that stream the more pretentious name of San Carlos River. A short distance from Globe to the north lies the water-shed between the Gila and the Upper Salado, and from it the Arroyo Pinal trickles down towards the latter.

I examined three sites of ruins in the vicinity of Globe. The one shown on Plate I., Figure 43, is the largest, and at the same time one of the best specimens of the checker-board type that came under my observation. It will be seen that the central mound or ruin is wanting, but that the small buildings and connecting enclosures are numerous and well preserved. The walls were of stone, and none of the buildings seemed to have been higher than one story. No traces of estufas were visible, and I will remark that, after leaving the Little Colorado River, I nowhere saw the circular depression of comparatively small size which indicates that structure in more northern ruins. The village of which I am now speaking stands south of Globe, on a denuded promontory with rather abrupt slopes, in a good defensible position; but unless the courtyards were for the purpose of holding tillable soil, I found no space for fields. It may be, however, that at the foot of the hill on which the ruins stand some plantations existed.

The ruin next in size which I investigated is much smaller, and lies north of Globe, on a very steep, rocky projection of at least two hundred feet in height. Here the proportion between buildings and enclosures was converse to that at Globe, the enclosures being few. One central room had the walls entire to a certain height, composed of broken blocks of stone of the thickness of 0.86 m. (34 inches). A fallen beam of cedar stands in the ruin like a post. The pottery needs no special notice, except that the corrugated ware is very coarse. At the ruin first alluded to, I found the metates to be, instead of lava, of a material resembling syenite.

The region is strictly a mining country, and the narrow clefts which the valleys represent, although some of them harbor groves of cottonwood, afford no room for extensive cultivation. Scattered Indian villages with a small population, such as the ruins indicate, may have subsisted by means of small patches of corn, and of such nutritive plants as grow without irrigation; but it seems to have been the defensible sites rather than the opportunities for subsistence, that induced the native to establish himself in these localities. In the Pinal range I was informed that there are no ruins, at least none of any consequence, and the steepness of its slopes as well as the forests lend probability to these statements. The immense deposits of copper and other ores were no inducement to the sedentary Indian of the Southwest. I diligently inquired about copper implements, but while some of my acquaintances had heard of such finds, no one had ever seen any. Native copper is not as common around Globe as are its different ores, which none but the people of Peru had attempted to reduce previous to the coming of Columbus.

While at Globe I was informed of ruins, with vestiges of large houses, said to exist along the course of the Arroyo Pinal, the little tributary of Salt River which takes its rise a few miles north of Globe. I therefore selected the northern route, with the view of examining the course of Upper Salt River and reaching the Rio Verde, and thence, after making a detour around a mountain region in which only a few places of refuge, like cliff-houses and cave dwellings, or cliff burials, might be expected, coming to the Lower Salado, and finally the Gila, below the deep cañones west of San Carlos. This determination caused me to follow the course of the Pinal a short distance beyond Wheatfields. Farther down I did not proceed, since a narrow gorge extends from there to its mouth in the rugged cañones of the Salado, in which I have stated that cliff-houses, and especially rock or cliff burials, had been discovered. The course of the Upper Salt River is almost without interruption through such clefts, and the impression was conveyed to me that it was generally uninhabitable for sedentary natives. A little west of the mouth of the Pinal, however, begins the beautiful valley of Upper

Salt River, and extends as far as the mouth of the Tonto, which stream the rugged Sierra Mas-a-sar divides from the Lower Rio Verde. South of Upper Salt River valley a mountain labyrinth stretches as far as the delta between the Salado and the Gila. North of Upper Salt River, the Sierra Ancha, a mountain cluster of no great elevation, but with very steep slopes and arid gorges, separates the valley from the Tonto basin. The latter contains many ruins, none of which, however, was I able to investigate.

"Wheatfields" (Los Trigos) is a pleasant flat in the gorge which the Arroyo Pinal traverses. The soil is fertile, and cottonwoods shade the banks of the stream; but it is only about a quarter of a mile wide. Gravelly embankments line it, and steep declivities descend from both the west and the east. On the west side of the Pinal I found the two ruins shown on Plate I. Figures 44 and 45. The distinctive feature of the larger ruin is a mound showing that it was a house with at least two, perhaps three, rows of rooms or cells. The height of this mound is 2.5 m. (8 feet), and the remainder of the ruins lie below it, like a trapezoid cut up into irregular quadrangles forming enclosures, with a few mounds that indicate smaller buildings. I had before me a complete specimen of the type noticed already at San Carlos, namely, the checker-board village, with a larger edifice. It was not possible to determine without excavations whether the mound rested on an artificial basis, or whether its height was due to the rubbish accumulated from the decay of a second story; neither was it possible to ascertain the thickness of the walls. All I could discern was that they were constructed of boulders or rubble, some of which had been roughly broken, while others were entire, and that adobe mud constituted the binding material. The pottery and household implements need no special description.

The smaller ruin is of the same type as the largest one at Globe, that is, a fair specimen of the plain checker-board village. But the artificial objects are of the same character, and there seems to be no difference in their age. It looked as if the two had been coeval, and their population small.

I was informed that seven miles from Globe and about four miles above Wheatfields a ruin existed which showed one hundred and thirty-eight divisions (houses and enclosures) on the surface of the ground. Two miles below Wheatfields the narrow gorge begins of which I have spoken, and the road to Salt River turns sharply to the south. On two steep promontories at this place stand ruins which I could not examine; but I noticed from below that one of them at least had a wall of circumvallation, or what seemed to be one, built along the brow of the hill. From the area which the top of each hill covered, the villages must have been small. Lower down the Pinal I did not travel, neither did I hear of any ruins in that direction except of caves and cliff dwellings along the Salado.

There were consequently at and near Wheatfields, within an extent of not over two miles, four aboriginal settlements. The question of their contemporaneousness cannot be decided, but, even under the assumption that all four were occupied simultaneously, they were so small that the population of the valley cannot have exceeded four or five hundred. The number was adapted to the nature of the spot, which seems to indicate a voluntary rather than a forced establishment. All the settlements stood on ground elevated above the level of the creek, which may have been necessary not only for defence against foes, but for protection against sudden risings of the stream which summer rains are liable to produce. The extent of arable soil is limited, but sufficient for the modest wants of a primitive people of small numbers, and wood was furnished by the cottonwoods and by scrubby conifers higher up. Water is permanent, so that Wheatfields is a spot where sedentary aborigines would not fail to settle, provided there was no impediment arising from surrounding enemies or from the dictates of superstition.

After leaving the two ruins last mentioned, a sandy slope gradually leads up to the heights that overlook the gorge of the Pinal in the west. A thorny vegetation covers it, and craggy summits and crests loom up all around. This slope rises steadily for about six miles, then the view opens to the north, and Upper Salt River valley lies at our feet, green with cottonwoods and cultivated patches. Beyond it rises the Sierra Ancha, between whose sharp ridges yawn formidable cañones, bare and arid. The descent into the valley resembles very much that to the banks of the Gila from Green's Gap; but vegetation is more vigorous, though still more monstrous. Salt River is "a broad, blue, rushing stream, wider than the Gila, with clear and very alkaline waters." It is the finest large river in the Southwest. I noticed ruins near Kenton's Ranch, but they were so disturbed and also partly built over that I could only trace fragments of walls and enclosures. The foundations of what may have been houses consist of large boulders. Enough was left to satisfy me that the type was similar to that at Wheatfields, namely, the checker-board combination of houses and enclosures.

On the south side of the river I investigated successively five ruins of the same class within a stretch of about eight miles, but there are several more. I refer to Plate I., Figures 46, 47, and 48, for their general character, and for their relative size. On the same side I noticed no ruins with a central mound, unless perhaps the one at Kenton's Ranch belongs to that type. All resembled the larger ruin at Globe and the smaller one at Wheatfields, and all could shelter but a small population. Thus the south side of Salt River valley was at one time dotted with a number of Indian settlements, erected at intervals of from a quarter to half a mile. Whether, in case they were all simultaneously occupied, their aggregate population amounted to over one thousand souls, appears to me doubtful.

In addition to those ruins that were plainly villages, there are some which were enclosures only. Instead of boulders or rubble, the lines indicating these enclosures consisted of stones set on edge, in single rows, and therefore incapable of supporting any superstructure. I was at a loss at first to account for these contrivances, as it seemed that the rows of stones had never been elevated more than a few inches above the ground. Afterwards, when I was informed that they had been garden beds, I recollected the similar devices of which I have given an account in the northern part of New Mexico.

In Sonora the Opata Indians told me that whenever a space of ground was enclosed with a rim of stones, and its surface cleared of the gravel and boulders with which it is usually covered, such space retained moisture much longer than any free expanse. The ruins in the Upper Salt River valley are always situated on the first or second tier of plateaux rising above the bottom, which is subject to overflow, the river rising sometimes suddenly and as much as ten feet above its usual level. That the homes of the aborigines should have been constructed on elevations is very natural; but at first sight it appears improbable that, with the fertile river bottom at their disposal, they should have resorted to the creation of artificial garden beds on the less fertile terraces above. Still, we must consider that, in the first place, the settlements were small, and a little ground sufficed for their subsistence; that the temperature on Upper Salt River is high, and the summers long; and that more rain falls in proportion than on the Gila. Consequently they were not so dependent upon irrigation as those on the latter stream. Ancient irrigating ditches exist on the north side of Salt River in the same valley, but, with the limited number of people which each settlement could accommodate, it was scarcely worth while to undertake the work of digging canals. In consequence, therefore, of the positive testimony of existing Indian tribes, I prefer to adopt the view that such clusters of enclosures were really garden beds, the more willingly that in most cases there are one or two small buildings in close proximity to them. These buildings are mostly large enough to have accommodated a family; in other instances they are so small as to suggest that they were only guard-houses.

On the north side of Salt River, not far from the ranch and home of Mr. Armour, stands an important ruin, the peculiarity of which consists of the long mound that forms a part of the open polygon which the ruin represents. This mound has been partially excavated, and found to contain rooms at least 1.25 meters (4 feet) high, and probably more. One beam was still visible; the walls were of stone, laid lengthwise in the front and transversely in the partitions. The height of this mound is 3.3 meters (11 feet), and there are indications that the buildings rested on an artificial terrace. I doubt whether this village, which is one of the most important in Upper Salt River valley, could accommodate more than one hundred and fifty inhabitants.

Interesting finds were made here. I saw a piece of hammered copper that had been taken from the mound, and a copper rattle. There may be some doubt concerning the origin of the latter, although, in view of a similar find made by Mr. Cushing in the Tempe valley, I am inclined to accept it as genuine, as native copper in laminæ occurs in the mining district of Globe. One of the most valuable objects extracted from these ruins is a sash with tassels, both made of yucca thread, which recalled forcibly the sashes of buckskin worn to-day by the members of the Order of Warriors among the Pueblo Indians in the scalp-dance. Of other objects I need not speak, as there is no difference between them and those of Globe, the Gila, and Fort Apache. The same degree of culture and the same taste in art appear to have prevailed, and the existence of copper implements in one or two localities does not justify the conclusion that any great advance had been achieved. That the Indians may have accidentally found out the malleability of a metal which occurs in their vicinity is not extraordinary. But the small number of such specimens indicates that the discovery had not had time to propagate itself, or that it was kept the property of a few, or exercised only as a matter of personal ingenuity or taste. It would therefore be inappropriate to designate the ancient inhabitants of Salt River valley as a people acquainted with the art of working copper in general.

Furthermore, we do not know whether the copper objects found near Armour's originated there as a product of home industry, or whether they had been imported. Curious objects sometimes travel immense distances among Indians. The instance of the copper rattle given in Central Texas to Alvar Nuñez Cabeza de Vaca and his companions should not be overlooked. That certainly was not made by the roving hordes among which it was found, neither did the Spaniards ascertain positively whence it had come.[1] Traffic or pillage in war causes such rare pieces to wander sometimes across a whole continent in the course of time. This may be the case also with figurines representing animal types from exotic regions. We need not, to explain their presence in other zones, resort to hypotheses of a geological character. So it is with metallic objects. On the coast of California a copper bead was found which has been pronounced by excellent authorities to be of undoubted aboriginal and primitive origin.[1] When Coronado visited the tribe that he calls Quiviras, in Northeastern Kansas, he found a piece of native copper suspended to the neck of one of the chiefs, and some copper rattles, and upon inquiry whence these objects had come. no satisfactory answer could be obtained.[2] Where the general culture is so markedly indicative of a degree of industry limited in its materials to stone, clay, bone, and wood, the presence of a few objects of metal is not sufficient to warrant us in placing a higher estimate on the advance achieved by the people.

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[1] Cabeza de Vaca, *Naufragios* (in Vedia, "Historiadores Primitivos de Indias," chap. xxix. p. 540): "Y entre otras cosas que nos dieron, houbo

There is an ancient irrigating ditch running not far from

Andres Dorantes un cascabel gordo grande de cobre, y en él figurado un rostro, y esto mostraban ellos, que lo tenian en mucho; y les dijeron que lo habian habido de otros sus vecinos; y preguntandoles que donde habian habido aquello, dijeronles que lo habian traido de hácia el norte; y que allí habia mucho, y era tenido en grande estima; y entendimos que do quiera que aquello habia venido habia fundicion y se labraba de vacio." Oviedo, *Historia General*, vol. iii p. 606: "Aquestos dieron á los christianos un cascabel de laton é çiertas mantas de algodon, é deçian que aquello venía de háçia el norte, atravesando la tierra hacia la Mar del Sur." This indicates that it came from the northeast.

[1] *Report on U. S. Geographical Survey* (Wheeler), vol. vii. pp. 264, 272.

[2] Coronado, *Troisième Lettre à l'Empereur Charles V.* (in Appendix to *Cibola*, p. 359): "Les naturels m'ont donné un morceau de cuivre qu'un de leurs chefs portait pendu au cou. C'est le seul métal que j'aie vu dans ce pays; je l'ai envoyé au Vice-roi de la Nouvelle Espagne. Ils me firent voir aussi quelques grelots de cuivre que je lui ai envoyés, et une très-petite quantité d'un métal qui ressemble à de l'or. Je n'ai pu savoir d'où il venait, mais je crois que les Indiens qui me l'ont donné l'avaient reçu de ceux que j'emmenais avec moi pour mon service. Je ne pus trouver une autre origine."

the ruin at Armour's. On both sides of the Salt River the ruins stand on the first and second tiers, and not on the bottom close to the banks. The ruins are all small, and clusters of enclosures abound, but in estimating the ancient population they should always be excluded from computation.

It is not unlikely that the checker-board type of hamlets, and the same class with a central mound representing a larger building, were coeval, and the work of the same people. If not contemporaneous, the question arises whether the latter type was not perhaps the result of a change in conditions of security. Open settlements like the former imply peaceable intercourse between the inhabitants of the various villages, and the absence of danger from neighbors or nomads of a different stock; but we have not even traditionary information about these people. Castañeda, as already stated, attributes the buildings of the "red house" near Fort Grant to "a people that had come from Cibola." Father Garcés was informed that the ruins on the Gila were those of pueblos built by some people that had come from Moqui. The reason which the Sobaypuris gave to the missionary for attributing those edifices to the Moquis was, that only the Moquis knew how to construct them, and to make pottery like that scattered about the ruins.[1] This shows that either they would not reveal to the priest any positive tradition in their possession, and consequently resorted to a myth of observation, or else that they knew of the northern origin of the settlements. If the latter should be true, then it is clear that the change in architecture south of the latitude of Fort Apache is due, not to some culture imported

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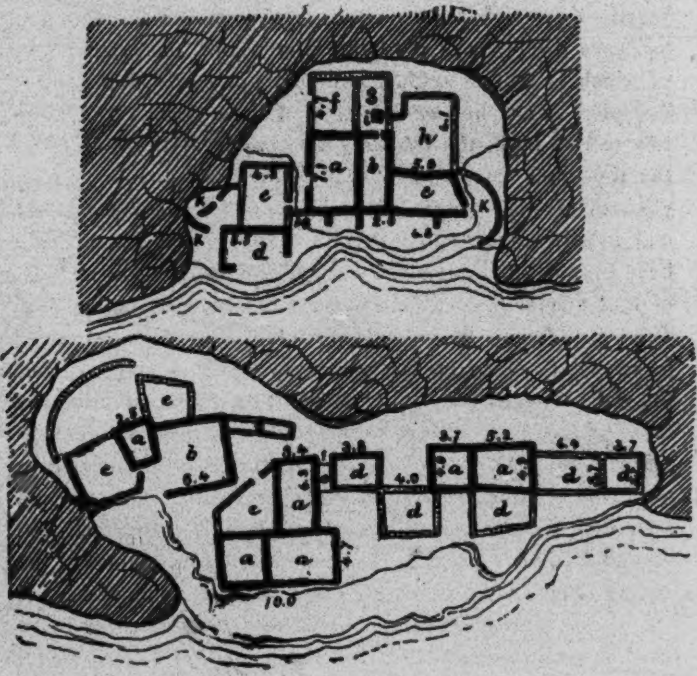
[1] Garcés, *Diario y Derrotero*, p. 328: "Pregunté años pasados á unos viejos Sobaypuris de mi mision, que quien había hecho aquellas cabas que estaban caidas y la loza quebrada que hay en varios sitios del Rio Gila, pues los Pimas ni Apaches no saben hacerlo. Respondiéronme que los Moquis, pues soló ellos sabian hacer aquellas cosas."

Plate V. — Cave Dwellings on the Upper Rio Salado, Arizona.

by tribes coming from southern regions, but to an adaptation of house architecture and of house life to exigencies arising from changes in climate and environment.

This becomes the more probable, because about five miles south of the banks of the Upper Salado, and not far from the ranch of the well known scout, Archie McIntosh, there are two cave dwellings of moderate dimensions, the architecture of which is that of typical compact pueblos. Each cave is occupied by one house, and each of these houses is at least two stories high, the stories retreating from the bottom to the top, after the manner of New Mexican pueblo houses. (See Plate V.) Roofs, ceilings, doorways, hatchways, are still mostly intact, and although many of the beams have been burnt by the Apaches, enough are left to give an idea of that feature also. The rooms are somewhat larger than those in most one-house pueblo ruins farther north, as might be expected, since the caves are very warm in summer; but the walls are identical in composition and structure, and the floors also. Each cave dwelling would be just as much in place at the Chaca Cañon, or on the Rio de las Animas, as in the rocky recesses of the valley of Salt River. The terraced form was in this case imposed by the arched rear wall and roof of the caves, and was the result of accommodation to the shelter sought in the cavities. The presence of hatchways in the upper stories indicates that ladders, not stairways, were used for communicating between the upper and the lower floors.

The caves lie on a very steep slope, in some parts even perpendicular. Their elevation above the bottom of the narrow gulch from which the slope arises is about four hundred feet, and the acclivity, besides the number of boulders and rocky fragments with which it is covered, is rendered still more difficult of ascent by a profuse growth of Cylindropuntiæ called Choyas, a dangerously thorny species of cactus. The bottom contains a spring, and is shaded by cottonwoods and dense thickets. The caves face to the east, and are visible at quite a distance from the river bottom. Approach to them was quite difficult for an enemy, and the buildings so completely fill the cavities, that only narrow passages lead to the rear of the houses, where they could be entered. But here, as well as at the Upper Gila, it was easy to cut off the water supply, and thus to reduce the inhabitants. There are no



CAVE PUEBLOS ON THE UPPER SALT RIVER.

tillable spots nearer than the river, so that it may be that they had to go several miles in order to raise their crops. It is well known that such a distance is not an insurmountable obstacle for the sedentary native.

Owing to the sheltered situation of these cave dwellings many specimens of their industry, manufactured out of the most perishable material, have remained intact. Sandals like those from the Tzé-yi, yucca fibre and thread, and, above all, specimens of cotton cloth, were found here. Of the latter I have seen much, and some of it shows traces of "drawn work." The ancient inhabitants of Upper Salt River valley had cotton, but it does not follow with absolute certainty that they cultivated it themselves; still this is quite probable, for the climate is such as to permit the growth of the plant there much better than among the Moquis, and we know that the Moquis raised cotton in the sixteenth and seventeenth centuries. The pottery found in the caves is in no manner different from that accompanying other ruins on Salt River, and all the other artificial objects are also similar. The general culture was therefore the same, and nothing tends to show that the difference in architecture implied also a different people. This does not prove that the same tribe built the checker-board ruins near the river, and the cave dwellings on the mountain slopes. They may have been distinct tribes, or may have even belonged to distinct linguistic stocks. They may have lived contemporaneously, or the cave dwellers may have descended into the valley and reared their abodes there, or the valley people may have withdrawn to the caves as their last refuge. But both belonged to the same culture group, and the difference in mode of dwelling was not one imported, but one created locally by necessity, or by natural opportunities. The fact that certain very perishable articles were found in the caves, and not in the partially ransacked ruin near Armour's, does not militate against this, for cloth and pottery of all sorts deteriorate much more rapidly in the ground or in rubbish than they do inside rock shelters; and this is especially the case where, as in this instance, the buildings under these shelters are still in an almost perfect state of preservation. The nutritive plants collected at both places were the same, corn and beans.

On the north side of Salt River graves have been found in connection with the enclosures of which I have spoken; but it seems probable, however, that they are those of Apaches. Near Armour's Ranch I saw the remains of an interment, from which loose bones and a few arrow-heads had been taken. The hollow left showed distinctly an oblong form, as if the body had lain extended, and been covered by stones, among which were several natural concretions of a singular shape. It is known that such mineral forms are used by the Southwestern Indians as fetiches. The mode of burial of the Apaches is said to be very simple; the body is interred and stones thrown over the place. In the present instance the corpse must have lain at only a slight depth, and I am therefore inclined to believe that it was an Apache burial; in this opinion I was confirmed by statements of the English-speaking settlers of Salt River valley.

From Armour's Ranch to the mouth of Tonto Creek the river continues to be lined with cottonwoods and groves of mezquite, no longer a shrub but a fair-sized tree. They have grown to quite a height on the mounds at Armour's; as the plant is said to be of slow growth, this would indicate considerable age. The shelves above the bottom land grow narrow as the mouth of the Tonto is approached, and the spaces for cultivation as well as the sites for habitation become smaller. Tonto Creek hugs the western slope of the

Sierra Masasar closely; the foot-hills are rugged and precipitous, and thorny plants cover their slopes. It is a wild spot, and wilder yet appear the mountains and the deep cañon in the west into which Salt River plunges.

The ruins in the immediate vicinity of the mouth of the Tonto hardly deserve any detailed mention, so much do they resemble those already described; but higher up, near Cline's Ranch, nine miles north of Salt River, I examined some interesting ruins. The bottom of the Tonto is sandy and overgrown with thorny shrubs, and cottonwoods line the rivulet. There are no ruins in this bottom, but on the bare shelves above it small ones are quite numerous. The checker-board village type is quite plain to be seen in places. One mile north of Cline's, however, I found a fine specimen of the kind already noticed at San Carlos, and more perfectly represented at Wheatfields and at Armour's. In this ruin the central mound is very plain, and the smaller houses have diminished in number and become reduced almost to outhouses. A quadrangular wall surrounds the mound, and the space thus enclosed is connected with the main edifice by walls of stone, thus dividing it into squares and rectangles. The wall has a thickness of 2.5 meters (8½ feet); but I am in doubt whether it was solid, or whether there were two lines of stone with a narrow passage between. It is still the checker-board type, but the dwellings have been mostly consolidated in one central mass, from which enclosures diverge towards the circumvallation. The height of the large mound is 2.25 meters (7½ feet), and from the débris I infer that it was either two stories in height, or was raised on an artificial platform. The pottery is absolutely the same as that of the plain checker-board ruins, which are quite abundant, but not distinctly connected with one another or with the ruins of the other class. The population of these mound ruins cannot have been much larger than that of the others. In the one near Cline's, I do not think that more than a hundred, if so many, could have found accommodation. The cells which the mound reveals are not larger than those of the usual small-house type, and there is but one, on the northeastern corner, which shows unusual dimensions. I am not sure whether this was not partitioned off originally.

The type of village which includes a larger and more substantial structure, indicated by a mound-like ruin, grows more conspicuous as we ascend the course of Tonto Creek. It may be said to prevail in Tonto Basin, which lies on the northern course of the stream, and extends along the northern base of the Sierra Ancha. On the west side of the stream, at Old Fort Reno, I measured two good specimens, the largest of which is given on Plate I. Figure 53. It is especially interesting on account of the manner in which the artificial platform is clearly shown. The platform supports two clusters of small houses very distinctly traceable. Tall mezquites have grown on the ruins, and the southeastern corner of the enclosure that surrounds the whole is formed by houses, two of which also stand on elevations, or at least form elevations rising above the surrounding level.

I will sum up the characteristics of aboriginal architecture of Upper Salt River with what I wrote to the Institute in 1883. After mentioning the checker-board villages, I said: —

"Besides small and low mounds, every village contained, if of any reasonable size, a larger and higher eminence, sometimes in the centre, sometimes towards one of the sides. This feature develops itself very prominently as soon as Upper Salt River is reached, and the lesser mounds decrease correspondingly.

"On Tonto Creek there is a very striking kind of ruin, consisting of a high mound in the centre, enclosed by a broad quadrangular wall, while transverse walls connect this enclosure with the central hill. A few small buildings still cling to the inside of the circumvallations and of the inner courts, and the large enclosure seems to have absorbed all the others. From this point on, this is the typical ruin, isolated houses of course excepted, with only a difference in the number of small buildings and in the position of the mound, which sometimes stands on the side, or in a corner of the whole cluster. . . .

"But this central building, into which in some cases all the dwellings have merged, cannot compare in size with the communal house. The largest mounds which I have measured show, along the well defined lines of foundations, perimeters of 131.2 meters in an L-shaped polygon with re-entering angles, and 99.1 meters in a narrow horseshoe; the former is subdivided into twenty-nine, the latter into not more than twenty apartments. . . . There are indications that in some cases the house was erected on an artificial platform, as at Fort Reno; and the amount of rubbish indicates that in several instances the structures were two stories high. These facts have a double bearing. In the first place, they show that the population of one village sought to live together in one building with comparatively large rooms; and secondly, they prove beyond a doubt that even the largest village communities were small in population, — for the most extensive, counting one room to each family and adding a corresponding number for the few outlying structures, could not have sheltered three hundred people each. . . .

"From concurrent testimony, I conclude that this is the character of the ruins of the Tonto Basin and of the Upper Verde River. It certainly prevails south of the Lower Gila as far as the Southern Pacific Railroad, with some not unimportant modifications."[1]

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[1] *Fifth Annual Report*, p. 64.

The Masasar range is not very high; the highest of its four peaks only rises to 8,666 feet.[1] But as the distance from Tonto Creek bottom is only about ten miles, and the latter lies nearly six thousand feet lower, the ascent is quite steep. In the upper slopes of the chain there are sacrificial caves, and I have also heard of enclosures; but the first ruins which I saw, after crossing the crest from Old Fort Reno, were in the Sunflower Valley on a hill of lava and trap densely overgrown with thorny plants. They consist of a central mound with quadrangular circumvallation, the usual enclosures, and smaller mounds denoting outlying dwellings, with pottery, etc., of the general type. At Otero's, farther west, another ruin stands on a bald hill. It is much obliterated, still I noticed a mound measuring 36.5 meters (120 feet) by about 7 meters (23 feet). Very faint traces of stone enclosures appeared in various places. What I saw of potsherds belonged to the plainest and crudest kind, but even these were very few in number, and most of the lighter objects scattered over the surface had been washed away.

Beyond Otero's Ranch the descent to the banks of the Rio Verde begins. "Sugar-loaf," a towering rock, rises on the south side of the road, with its northern front almost vertical, and certainly inaccessible; the only ascent possible is from the south, where a steep acclivity, overgrown with dangerous "Choyas," affords means of reaching the top. There is permanent water at the foot of this cliff, and I was informed that ruins exist on its summit; but I failed to find them, unless they consist of rudely piled up circumvallations. It may be that Sugar-loaf was used as a temporary place of refuge.

Thence on to the banks of the Rio Verde sandy terraces extend, covered with every imaginable species of monstrous cactuses, tall mezquites, Mimosaceæ, and *Parkinsonia Tor-*

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[1] According to the United States Geographical Survey.

reyana (the leafless *Palo verde*); the distinctive forms of the Southern Arizonian flora dot the white ground, and the temperature is frightfully hot even in May. The Rio Verde at Fort McDowell is a beautiful stream, emerald-green, enclosed by dense thickets and shaded by cottonwoods. The post stands west of the river on the first terrace above the bottom. The soil is sandy, and the vegetation bears the same character as on the east side. The temperature at the post in the afternoons from the 2d to the 13th of June varied between 102° and 108° in the shade. Low mountain ranges covered with scrubby vegetation skirt the western horizon.

The ruins around Fort McDowell lie on the terraces above the river, and those on the west bank are of the circumvallated mound type; but in some the walls of the central house are of a coarse adobe. In the ruin near the post, however, and in another one two miles south of it, the walls are of stone. (See Plate I. Figures 56 and 57.) There are also mounds of white marly rubbish, quite low and flat, but still showing that they once were houses. These mounds, from their material, belong to the class of ruins that prevail on the Lower Gila and Salado Rivers. I saw some lava implements, many broken metates, and a little pottery. The latter resembles the earthenware made by the Maricopa, Pima, and Pápago Indians of to-day, that is, it is coarse and poorly decorated with reddish lines. Still I also found some of the ancient kind, white and red, with black decorations of the Pueblo pattern. On the west sides of the Rio Verde, near its junction with the Salado, I measured two ruins of the plain checker-board pattern, without the central mound. The ground there is different from that higher up and on the opposite side; the mountains approach the river banks, and the surface is gravelly. Hence the material used in building was rubble instead of adobe.

Remains of ancient irrigating ditches are quite common about Fort McDowell. I examined, among others, one of them north of the post, and found that, while it was quite long, its length was due in a great measure to the fact that its builders had simply followed the natural trend of the surface in order to avoid both cutting and filling. It makes great detours, clinging to the tortuous slopes as much as possible, so as to preserve the inclination without raising embankments. It is a piece of workmanship that, while certainly ingenious, places the skill of its makers on quite a modest level. I have heard of acequias as long as twenty miles, and have no reason to doubt the truth of the statement. In the manner indicated, it was easy to construct shallow ditches of great length. The width of the acequia is still 3.1 meters (10 feet) and the depth a little over two feet.

In addition to these canals, artificial tanks begin to appear in the neighborhood of Fort McDowell, differing from those on the Upper Gila; they are elliptical, and the rim is formed of stones, or by an embankment of earth of considerable thickness. But all these features are more nearly obliterated here than farther south, on the Salado and the Gila, near Tempe, and at Casa Grande. As the material is the same on the Rio Verde and on the Gila, greater age of the ruins on the former would seem to be the safest explanation.

I was informed by Mr. Walker, at Casa Grande, that the Pimas claim all the ruins north of the Gila to the Ka-got, or "Superstition range," as those of their own people. They say that a son of "Civ-an-o," the chief to whom they attribute the construction of the Casa Grande, settled on the banks of Salt River, but that on the Rio Verde there lived a different tribe, with whom their ancestors were at war. The Pimas also state that the ruins with walls of stone are not those of their ancient settlements, and they call them "O-ot-kom Vat-ki," gravelly ruins. As their own pueblos formerly extended to the junction of the Rio Verde with the Salado, it would seem that the buildings near Fort McDowell stood near the limits of two tribal ranges, and were therefore more exposed to assault, when the two groups were at war with each other. There certainly is some historical truth in these fragments of folk-lore.

Higher up the Rio Verde, ruins of the mound type are said to occur in places, and it is known that near Fort Verde interesting aboriginal remains exist, but not having penetrated to that region, I cannot give any details about them. Cliff and cave dwellings have been discovered in the picturesque volcanic basin, with precipitous walls, called Montezuma's Well. West of the Rio Verde, I am informed, the ruins gradually grow fewer, and finally disappear near the 113th meridian. It may not be amiss, therefore, to designate that degree of longitude as the approximate western limit of aboriginal ruins in Arizona. More thorough investigations may subsequently modify this assumption.

I now come to the important region which is known as the delta between the Lower Salado and the Gila, often called the valley of Tempe, and one of the most remarkable sections of the Southwest. This delta lies twenty miles south of Fort McDowell, and is bounded by the Salado in the north, the Gila in the south, and in the east or northeast by the arid mountains called Superstition range. A level plain, about fifty miles from east to west and twenty-five from north to south, in the shape of a triangle, sandy and unprepossessing in appearance, forms the surface of this delta. In its virgin condition it was covered by the usual thorny vegetation, and colossal zahuaros dot it in every direction. Along the banks of the Salado barren ridges extend in places. Beyond Tempe these ridges close in upon the stream, leaving but a comparatively narrow strip, but after a few miles they recede again on the north side, and the fertile valley of Phœnix appears like a western addition to the plain.

The altitude of Phœnix is 1,068 feet, that of Florence (or the southeastern corner of the delta) 1,553, so that the fall in a distance of fifty miles is nearly five hundred feet. The Salado flows at a higher level than the Gila, and it also carries a larger volume of water. The settlers of to-day have improved these conditions, not only by constructing canals parallel to the course of both streams, but across the delta from one river to the other, so as gradually to bring every foot of the surface under irrigation. The soil is extremely productive whenever moistened, and as the rainfall is uncertain, and on an average slight, artificial irrigation is indispensable. There are sections on the south bank of the Gila where two years may elapse without rain, except what falls on the mountain crests. There is no evidence that these conditions have changed within the period of sedentary habitation. Everything,on the contrary, points to the fact that the ancient dwellers in this country had recourse to the same methods as those of to-day, but on a scale and with mechanical means proportionate to a lower degree of civilization. Ancient irrigating ditches are frequent, and of considerable size. They run mostly parallel to the streams, but transverse acequias have also been discovered. I refer to the Preliminary Report of Mr. F. H. Cushing on the work done by him for the Hemenway Expedition for more complete details on the ancient irrigation system in the vicinity of Tempe.[1] I investigated one of the artificial channels a few miles west of Tempe. The width of the channel of this irrigating ditch is 4.5 meters (15 feet); its length, as far as I could ascertain, about twenty miles. The borders where I saw it are slightly raised, and the whole shows nothing very marvellous. The soil is so movable that it was comparatively easy for a tribe that does such work by communal labor to open it with the aid of shovels of hard wood, such as the Pimas claim were used by their ancestors in tilling enclosed garden plots, to remove the soil with baskets, and afterwards keep the acequia in repair. Among the Pueblo Indians of to-day such works are communal enterprises, carried on by all the men, and sometimes also by the women, of the village, and performed at stated times. The same system was practised by them before the advent of Europeans, and before they had any knowledge of metal tools. In the region of Tempe and Phœnix the conditions were, to a certain extent, more favorable than on the Rio Grande, on account of the lightness of the soil. There is said to be a long and wide ditch near Tempe, part of which is reported to be cut through solid rock, but I have not seen it, and I have so often been told of similar marvels, which upon inspection dwindled down to quite modest proportions, that until it is proved by careful investigation that the cut is really artificial, and not merely a natural one artificially widened in places, I must take such statements with a great deal of reserve.

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[1] *Preliminary Notes*, p. 168: "These canals in the Salado and Gila valleys were found to vary in length from ten to eighty miles, and in width from ten to eighty feet, with a depth from three to twelve feet. Each canal, whether large or small, was found on excavation to have been terraced, i. e. the banks of dirt thrown out in its excavation had formed, as it were, a greater canal containing a

In addition to ditches, tanks, mostly elliptical and encompassed by solid embankments of earth, are of frequent occurrence. I always found them in the vicinity of ruins of settlements, and more or less distinctly connected with ancient canals.

What I am about to say may expose me to the criticism

lesser, which in turn contained yet another. . . . I have said that these canals, reservoirs, and other ancient water-works, so levelled and filled had they become in the course of centuries, were scarcely traceable above the surface of the ground."

of attempting to depreciate the importance of aboriginal remains in the region under consideration. Whatever may have been stated as to the extent of the ancient settlements between the Salado and the Gila, and on both banks of these streams, I am satisfied that, while there are a great number of clusters of substantial buildings, there is nowhere any important aggregation representing a population locally large. Two classes of dwellings have been noticed, one of which is a many-storied or one-storied edifice, sometimes artificially raised, but nowhere equal in size to the communal pueblos of the north. The other is thus described in the words of Mr. Cushing: —

"The foundations of thin-walled, usually somewhat rounded huts, outside of the walls surrounding communal dwellings, scattered indefinitely and apparently without system, particularly around the outer borders of each city, and designed for occupancy by a distinctive ultra-mural — one might almost say ultra-urban — population; as shown by the fact that they were not, as are the scattered farm huts of Zuñi-land, occupied in summer merely, but in winter as well; as signified by the occurrence in each of a central hearth or fire-bowl, like those of the regular houses within the city."[1]

These round structures, of which only the foundations were found, are those of more modern Pima huts. It is well known that the latter are round, and that their covering is semi-globular, like the well known roof of beams, poles, brush, and earth found in all the pueblos and ancient ruins, with the difference that, instead of being horizontal, the modern Pima hut is bent in the form of a cupola so as to be used as a wall as well as a roof. This cupola rests on a ring made of earth, and this ring remains like a foundation when the superstructure decays and gradually disappears. It is also known that at the close of the seventeenth and in the beginning of the eighteenth century, when the country of which I speak was first visited by the Jesuits, quite a number of Pima settlements were found, which have since been abandoned, their inhabitants removing to other sites.[1] What may, therefore, be regarded as absolutely ancient are the groups of larger buildings, and these groups are always at some distance apart, — enough to establish that each group formed a separate village. It follows, therefore, that the conception of extensive cities is not applicable here, and it is very doubtful whether the ruins were contemporaneously inhabited. Lastly, it is by no means certain that a common tribal bond united the groups that were contemporary and contiguous. We know, on the contrary, that most of the pueblos inhabited at the time of Columbus formed autonomous communities, and that a confederacy for mutual assistance in peace and in war represented the most advanced conceptions of the natives beyond the tribal cluster. This applies to villages situated on the same irrigating ditch; Tenochtitlan and Tlatelolco used the same acequia and were contiguous, yet they were independent of each other for a long time.[1] Where irrigation works of such great length as those on the Gila and Salado were possible, their opening may have been the work of two or more independent pueblos, just as to-day San Ildefonso and Santa Clara have one of their ditches in common. Such community of public works results from linguistic ties and from the nature of Indian social organization. It does not exclude autonomy, and it is and has always been a fruitful source of dissensions, even of warfare.

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[1] *Preliminary Notes*, p. 175.

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[1] I refer to the report of Father Franciscus Eusebius Kuehne, appended to the *Luz de Tierra Incognita*, and entitled *Relacion Diaria de la Entrada al Norueste que fué de hida y buelta de 309 leguas desde 22 de Setiembre hasta 18 de Octubre. Descubrimiento del Desemboque del Rio Grande á la Mar de la California y del Puerto de Sta Clara*, 1698. Previous to that date Captain Matéo Mange had already written a description of his trip with Father Kuehne to the Gila and Casa Grande in 1697. It is published in the third series of *Documentos para la Historia de Méjico*, under the somewhat misleading title of *Relacion del Estado de la Pimeria, que remite el Padre Visitador Horacio Polici, por el año de 1697*, vol. iv. p. 804. More definite are the reports of 1740 (*Noticias de la Pimeria del año de 1740*, Ibid., p. 838): "En el Rio Gila hay tanta multitudo de gente Pima, que hay quien asegure que en sus riberas seve tanta y mas que la que hay en el Rio Hiaqui, y esta gente está poblada Rio Abajo, sin duda hasta el mar, porque rio arriba á distancia no hay muy larga." The most explicit, however, of all the explorers is Father Jacob Sedelmair in 1745, in *Relacion que hizo el Padre Jacobo Sedelmair de la Compañia de Jesus, Misionero en Tubutama, con la Ocasion de haber venido á México por el mês de Febrero del año de 1746, á solicitar operarios para fundar Misiones en los Rios Gila y Colorado, que habia Descubierto en dos entradas que hizo á la Gentilidad al norte de su Mision* (Ibid., p. 849). It follows from all these authorities that in the past century the Pimas were scattered about the Gila on both banks in numerous small settlements, and also in all probability north of the Gila towards the Salado. In 1775, Father Garcés mentions at least four "rancherías" of Pimas near Casa Grande: "Salieron á recibirnos los Pimas Gileños de resulta del recado de ayer, esto es, su gobernador de las rancherías llamadas Aquituni y Cuitoa. El de Utilltuc con su alcalde acompañados tambien del gobernador de Sutaquison y otros muchos Indios á caballo . . . En este pueblo de Sutaquison se acaba la nacion Pima del Rio Gila, la que en el distrito de cuatro leguas tiene cinco pueblos, es á saber: San Juan Capistrano de Utilltuc, San Andrés de Tubuscabors Atison, San Serafino del Napcub y la Encarnacion de Sutaquison, compondrán como 2,500 almas. Todos estos pueblos hacen grandes siembras de trigo, algunas de maiz, algodon, calabazas y otras semillas, para cuyo riego tienen formadas buenas acequias, cercadas las milpas con cerco comun, y divididas las de distintos dueños con cercos particulares." *Diario*, pp. 232, 235. These statements of Father Garcés may even tend to explain the great number of irrigating ditches on the Delta and the Gila; many which now appear ancient may yet prove to be only two or three centuries old. At all events, it tends to show that the Pimas, even in the past century and before, had not abandoned certain ideas of culture which distinguished them from the

I repeat here that nowhere was I able to discover distinct

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wilder tribes around them. Arricivita, *Crónica Seráfica y Apostólica*, lib. iv. cap. iii. p. 463. "Hay en solo este corto distrito cinco pueblos, que tienen como dos mil y quinientas almas: hacen grandes sementeras de trigo, maiz, algodon, calabazas y otras frutas, para cuyo cultivo tienen con buenas acequias, cercadas sus milpas; y andan vestidos con mantas que hacen ellos de algodon ó de la lana de sus ovejas"

[1] Tezozomoc, *Crónica Mexicana*, cap. xli.; Tobar, *Relacion del Origen de los Indios que habitan esta Nueva España segun sus Historias*, p. 69; Duran, *Historia de las Indias de Nueva España*, cap. xxxii. p. 257; and many other authorities.

traces of the estufa. Mr. Cushing declares that he found it.[1] We must therefore await the publication of his final report before asserting or denying anything on this point.

The artificial objects associated with the ruins agree with those of Pueblo culture in general, as is abundantly corroborated by the magnificent collections made by the Hemenway Expedition under Mr. Cushing's direction. The pottery is not at all different from that of the Salado, Upper Gila, and Fort Apache, local differences always excepted.

Part of Tempe stands on an ancient village, but the destruction is such as to render it difficult to trace the merest outlines. I saw some excellent stone axes which came from this site, of the type peculiar to the Southwest. On the plain southeast and south of Tempe stand several lofty mounds, but the ground is in private hands. These mounds showed houses several stories high, with thick walls. I transcribe here the description given by Mr. Cushing of the manner in which these walls were constructed: —

"The walls of all of these builings were found to have been constructed after an ingenious and heretofore undescribed fashion. Besides stone and hand- as well as basket-made adobe work used in the making of them (especially of the communal dwellings to be mentioned later), careful examination revealed along the outer and inner edges of the main walls numerous holes, containing the dust of decayed wood. This gave evidence that corresponding to the thickness of a proposed wall rows of upright posts had been firmly planted, as further careful cutting into plastering on these walls determined these had been fastened together, both laterally and horizontally, and transversely by means of poles and sticks lashed to them. This wall-like form or framework had then been wattled on both the outer and inner sides with canes, adobe mud, or in some instances a kind of concrete, had then been impacted within these great wall-frames, and heavy coats of plastering added to their outer and inner surfaces. Thus, when dried, a structure almost unparalleled in adobe-work for solidity and enduring qualities was formed.

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[1] *Preliminary Notes*, p. 165: "Usually contiguous, or, if far removed, at least adjunctive to these great central temples, were what I found occasion to name the 'sun temples' of the ancient inhabitants, where, as evidenced by the central hearth, by the floors elevated at the edges for the accommodation of spectators, and by other signs, the mythic sun drama and other sacred ceremonials must have been performed during winter; as well as wherein the esoteric societies gave their rare public exhibitions of mysterious feats or occult medicine powers.

"The smallest of these which we measured was fifty feet in width by nearly a hundred in length, another was not less than one hundred feet in width by more than two hundred in length. All were elliptical in shape, the sole traces of which looked like gigantic oval mounds from which the centres had been dug out.

"In this appearance they were almost identical with enormous oval reservoirs which occurred throughout the district, with the difference, however, that while the latter were usually lower, and open at one or both ends, the sun temples were almost always unbroken."

" The inner walls of these buildings differed from the outer only in being less massive, that is, in having the two rows of border posts nearer together. The lesser partitions had, on the other hand, still less thickness, having been built up along a 'core,' as it were, composed of a single row of posts."[1]

The walls of the houses in this region represent, therefore, something akin to " gabion " work, with the difference that, while gabions are round, here they are square or rectangular, tied to one another, and a number of rows superposed to give to the walls the requisite height.

It is difficult to determine how many stories the loftier buildings originally had. As many as seven have been attributed to them, but I hold this to be an exaggeration. The greatest number attributed to the Casa Grande by its earliest explorers is four,[2] and at present there are only three visible above the surface of the ground. Whether some of the stories were built so as to be retreating or not, I am unable to decide. From the appearance of the third story in the Casa Grande, we might be led to infer that, while the two lower stories have an unbroken wall on all sides, the uppermost tier may only have occupied the central part of the edifice, and not extended over the whole. The rooms are higher and much more spacious than in the northern ruins; the doorways are higher and wider, and the apertures for light and air, while not deserving the designation of windows, are larger than those in northern communal houses, although not much larger than in some of the well preserved cliff dwellings. But the largest buildings cannot, as will be seen further on, compare in extent with the typical pueblo house. On the whole, the architecture of the Tempe delta and Lower Gila is only a higher development of that noticed on the Upper Gila and Upper Salado, and the change appears to be the result of natural causes. The country is much more favorable for the subsistence of an agricultural population, and the inducements for permanent settlement were greater, so that greater solidity of construction was the natu-

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[1] *Preliminary Notes*, p. 164.

[2] Mange, in 1697, says (*Relacion del Estado de la Pimeria*, p. 804): " Y aunque

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estos jentiles lo han quemado distintas veces, se ven los cuatro altos con buenas salas, aposentos y ventanas curiosamente embarradas por dentro y fuera de manera que están las paredes encaladas y lisas con un barro algo colorado." Sedelmair, *Relacion*, p. 847: "La una de las Casas Grandes es un edifico grande, el principal cuarto del medio cuatro altos, y sus contornos de los cuatro lados de tres." *Description Geográfica natural y curiosa de la Provincia de Senora*, 1764, (the same as the "Rudo Ensayo," in third series, p. 503,) says: "Tiene dicha casa cuatro altos que están en pié aun." Father Pedro Font, who visited and measured the Casa Grande in 1775 in company with Father Garcés, says (*Notice de le Grande Maison dite de Moctecuzuma*, in *Cibola*, Appendix, p. 386): "Enfin on reconnait que l'édifice avait trois étages; si ce que disent les Indiens est vrai, et à en juger par des indices, il y en avait quatre, en comptant un étage souterrain." Arricivita, *Crónica Seráfica*, p. 462: "Se conoce que la casa tenia tres altos, y acabo serían de madera. y se destruirían en la quemazon que de ella hizieron los Apaches." Mr. John Russell Bartlett (*Personal Narrative of Incidents*, vol. ii. p. 272, 1854) saw only three stories.

ral result. The material at hand most convenient and most practical was adobe, which does not admit of being raised with frail walls. The climate, moreover, is such as to render the assembling of a number of families in buildings with small cells uncomfortable and detrimental to health. Hence we have smaller edifices, but larger rooms and better ventilation.

In my letter to the Institute published in the Committee's Report of 1884, I referred to artificial mounds, resting on artificial terraces, which I found both at Tempe and at Casa Grande.[1] It has since been stated that these mounds were houses, and not solid masses of earth, as I supposed. With due respect to the source from which such statements have come, I would still adhere to my original opinion, until excavations made in the same localities of which I speak, and on the same ruins, reveal the existence of chambers. At the great mound, about three miles west of Tempe, clefts cut into the mass to a considerable depth, as they do into the so called Pyramid of Cholula, and I noticed that the mound was one solid mass, while the lines of foundations on the surface, and smaller mounds rising from them, indicated that the artificial eminence had originally supported buildings on its summit.

After these preliminary observations I turn to those ruins which I have personally investigated. My attention was first directed to the great mound situated a few miles west of Tempe, on the north side of Salt River.

That mound (see Plate I. Figure 58) forms the southwestern corner of a quite extensive group of ruins situated north of the road from Tempe to Phœnix. Clusters of the checker-board pattern, with foundations made of rocks, and little hillocks indicating houses, are scattered about it, chiefly to the east. I could not determine whether the large mound was directly connected with these clusters, or whether the latter formed one complex or not. Still they are in such close proximity that an original connection appears likely. The pottery is alike on the mound and on the smaller clusters. It is mostly coarse, with a sprinkling of painted fragments resembling the oldest types. About a hundred meters south of the mound are the vestiges of an ancient acequia, which is at present not over 4 meters wide and barely 0.75 m. (34 inches) deep. The mound presents a triple elevation. First there is a platform about 1.6 meters (5¼ feet) high, along the rim of which ran a wall with an edifice, now reduced to rubbish. In its northwestern corner, at distances varying from 16½ to 3 meters (55 to 10 feet) from the edge of the platform, rises the mound itself to a height of 3.2 meters (10½ feet). Its sides are steep, and it is easy to see, where the interior is exposed, that it is a solid mass of earth, and not a building with rooms. Furthermore, the level on which the lower platform rests lies very little, if any, above that of the ancient irrigating ditch near by. I do not hesitate, therefore, to regard it as a solid mass raised on an artificial platform. The top of the mound bore a cluster of mounds and enclosures, a checker-board village on a small scale.

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[1] *Fifth Annual Report*, p. 66.

It will be remembered that the artificial platform already appears on Tonto Creek, and perhaps on the Upper Gila also; at Tempe it assumes a greater degree of perfection, as does the mound. The latter resembles the rectangular truncated pyramids of Mexico, with the difference that it is wholly of earth, and that its height is inconsiderable. Why the natives should have resorted to this kind of structure here and on the Upper Salado, and why only in certain cases, is a matter which I must leave for discussion to a later portion of this chapter.

There are ruins farther west, but I have not visited them. The plain between the Salado and Gila south of Tempe also contains numerous ruins. Here the Hemenway Expedition made its first researches, and the forthcoming report on its work relieves me from the need of detailed allusion to the remains disseminated over that section. I traversed it rapidly, catching a glimpse of the huge mounds at Mesa City, and crossed to the south side of the Gila at Agua Dulce.

Nature is the same there as on the north bank. As far as the eye reaches, it meets only whitish expanses dotted by a strange vegetation, except along the horizon, where rugged mountains obstruct the view. On the north side of the Gila rise the formidable cliffs of the Superstition range. Above it tower the four craggy peaks of the Masasar range. In the south, the mountains appear even more desolate; their profile is sharp, and they form well individualized clusters. It is frightfully hot on the banks of the river, but cottonwoods and other leafy plants shade its course. The volume of water is usually inferior to that of the Salado. In this section sometimes more than a year elapses before a shower reaches the bottom lands, but on the mountain crests and slopes thunder-storms occur daily during the rainy season. The gulches and rills descending from the heights forthwith carry the rain-water down to their foot, and sometimes as far as the first tier of terraces above the Gila. The Maricopa Indians take advantage of this to irrigate their fields by means of these mountain torrents, and, as already observed, the ancient inhabitants on the Upper Gila, and at other places, did the same. This accounts for the old irrigating ditches running at right angles to the course of the rivers.

Along the Lower Gila the ruins are easily noticed at a distance. They loom up as white mounds, which upon approach show traces of pottery, and sometimes protruding walls of adobe. One of these mounds is situated about one mile west of Agua Dulce, with several smaller ones around it. Such clusters are numerous, and sometimes close together; still they were distinct settlements. They indicate a number of villages, most of which were of small size, stretched along the river and also scattered at greater intervals to the south of the Gila valley. Occasionally a ruin is met with of greater extent than the rest.

Six miles west of Agua Dulce stands the "Casa Blanca." What I surveyed of this prominent cluster is a mound, with surrounding wall. Upon examination I came to the conclusion that it was a ruined house several stories high, the walls of the upper story of which can be traced on the surface. Their thickness is 0.50 m. (20 inches) and they are of the usual white adobe. The circumvallation is of the same material. The building stood on an eminence, and a good view is enjoyed from it. A short distance below begins the Gila bottom, with its thickets and cottonwood groves. The Pima Indians have a village near by, so that I could not investigate further; but it appeared to me that the ruin was not the only one on this site, but that the ancient settlement had been composed of at least several buildings, of which the one measured was probably the most considerable.[1]

The circumvallations have as a rule one or more smaller structures along their inside, which peculiarity is also found on Tonto Creek and on the Rio Verde, and is most strongly marked at Casa Grande. Casa Grande is, as I have elsewhere stated, an important monument. "Its situation has nothing to distinguish it from other ruins; but some of its buildings are intact, and others enable us in their ruined state to explain the present condition of other places. In short, the Casa Grande shows every degree of decay, every kind of structure, which the ancient villages of that region exhibit."[1]

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[1] The distance from Casa Blanca to Casa Grande is about thirty miles; it is not unlikely therefore that the two edifices which Father Sedelmair mentions as still in existence, twelve leagues west of Casa Grande, were those of Casa Blanca. He wrote in 1746, having visited the Lower Gila two years previously (*Relacion*, p. 847): "Como doce leguas mas abajo hay otros dos edificios con otros menores á su contorno y acequia." The statement that, in 1744, there were still two houses standing with several smaller ones around them, is significant of the rate of decay of these ruins built of friable adobe.

The distance between Casa Grande and Casa Blanca is about thirty miles. Opposite Zacaton, where the Pima agency is located, there is a ruin on the north bank of the river, the foundations of which are of stone, and not of adobe, like those on the south bank. The reason for this becomes apparent when we consider the location. Steep and rugged heights approach the banks of the stream from the north, and the expanse between them and the Gila has only a thin crust of soil. Hence the material for making adobe walls was lacking, and stone was resorted to for construction. Eight miles northeast stands another ruin, but on a level of greater area, the soil of which is similar to that on the south bank. Accordingly this ruin is a shapeless mound, showing that the building was originally of adobe. Adobe walls, when they begin to crumble, turn almost to dust, and the ruin appears like a natural hill, in the interior of which partitions remain intact and are revealed by the most superficial excavations. The rubbish fills the rooms, so that in many cases artificial objects remain well preserved within. From the ruin last mentioned I saw a handsome clay urn painted yellow, with red decorative designs. Similar potsherds were scattered over the mounds at Casa Blanca. The jar was found to be sealed with a composition of mezquite gum and clay, and after this cover had been removed the interior was found to be filled with minutely broken human bones, every part of the skeleton being represented. Of the burials on the Tempe delta Mr. Cushing speaks as follows: —

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[1] *Fifth Annual Report*, p. 67.

"It was, as I have said, in the course of investigating one of these latter mounds, that I ascertained they were what I found it expedient to term 'pyral mounds,' since on their sites, for generations evidently, had been burned a certain class of the dead of these cities, together with their numerous funeral sacrifices. Usually at the southern and western bases of these mounds were found great cemeteries containing from twenty to two, three, and even four hundred incinerary urns.

"The same excavation which revealed these features of a pyral mound also revealed the contiguous enclosing wall of what proved to be a typical, very extensive, many-roomed dwelling. Not only from the discovery of totemic devices and forms of pottery, of which each one of these great blocks of dwellings contained always a distinguishing few, but also from the fact that each had outside of its enclosing wall its own pyral mound, its great underground communal oven, and its still greater reservoir fed by a special branch of the larger city viaducts or canals, it was inferable that each was the abiding place of a particular clan or gens."[1]

Elsewhere he says: —

"First in the temples, in what remained of the second and third stories, afterwards in the enclosed communal buildings, we found sepulchres. Those in the temples were built of adobe, shaped like sarcophagi. These had in turn been carefully walled in and plastered over, in order that the living-rooms that contained them might still be occupied. Amongst other evidences of this were two instances in which these adobe burial cases or sarcophagi had been let into the main central wall, by cutting nearly half-way through the latter, then plastering, in order that space in the living-room might be thereby economized; in yet another instance, the remains of a child were found wholly enclosed in a niche which had been excavated in the same central wall, near the floor.

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[1] *Preliminary Notes*, p. 167.

"The interments in the surrounding walled communal dwellings differed from these latter only in that they were usually placed beneath the ground floors, sometimes in simple excavations sealed over with plaster, sometimes in carefully made rectangular cuttings, the bottoms and sides of which had been more or less thickly and carefully plastered and impacted. There were here also occasional instances of economizing in the space of the living-rooms, whenever in fact the dead had been buried above or on a level with the floors. In such cases cuttings large and high enough for the reception of the bended legs elevated at right angles to the reclining bodies had been made in the walls, and sarcophagi built out therefrom corresponding in length to the length of the body from the hips headward.

"In both the temples and the communal dwellings nearly all little children, the remains of whom were found, occurred in graves or sepulchres disposed about the hearths of the kitchen, or cooking-rooms.

"Frequently double, and in three instances treble, burials were encountered. The latter will help to explain the former. In one case, as admirably observed and reported by Dr. Wortman, the lowermost or first interment was that of a young woman; the next, superimposed, that of a youngish or middle-aged man; the last, and nearest the surface, that of an old woman. Both the young woman (first burial) and the old (last burial) had suffered from a peculiar disease which affected the bones; and which, as shown by my observations of certain families in Zuñi, was often transmissible by heredity. Apparently then the two women were related, if not indeed sisters to each other. The skeleton of the man, however, showed no sign of disease; hence it was inferable that he was unrelated to the women buried with him by any other than marital ties. Judging of this case by Zuñi marital institutions, the young woman was the first wife of the man. She dying, he married, according to well known primitive custom, her sister, who, surviving him by many years and remaining unmarried, had been buried with him, as he had been buried with his first wife. . . .

"All of the skeletons, especially of adults, were, as a rule with few exceptions, disposed with the heads to the east, and slightly elevated as though resting on pillows, so as to face the west; and the hands were usually placed at the sides, or crossed over the breast.

"With nearly all were paraphernalia, household utensils, articles of adornment, etc. . . .

"On the other hand, it was found that outside of the communal dwellings, usually at the western or southern bases of the pyral mounds, occurred extensive cemeteries. Each burial consisted of a vessel, (large or small, according to the age of the person whose thoroughly cremated remains it was destined to receive,) together, ordinarily, with traces of the more valued and sacred articles of personal property sacrificed at the time of cremation. Over each such vessel was placed either an inverted bowl or a cover, roughly rounded by chipping, of potsherds, which latter in most cases showed traces of having been firmly cemented by means of mud-plaster to the vessels they covered. Again, round each such burial were found always from two to three or ten or a dozen broken vessels, often indeed a complete set; namely, eating and drinking bowls, water jar and bottle, pitcher, spheroidal food receptacle, ladles large and small, and cooking pot.

Sometimes, however, one or another of these vessels, actually designed for sacrifice with the dead, was itself used as the receptacle of his or her remains. In every such case, however, the vessel had been either punctured at the bottom or on one side, or else violently cracked, in what I may call, from my knowledge of Zuñi customs, was the process of killing it. In and around all such vessels thus broken for sacrifice with the dead, were the remains of other articles, — the nature of which depended always upon whether the person interred was man or woman, girl or boy, — showing traces of having been burned in the same fires as that which burned these dead.

"As was the case in the temple and house burials, so here were occasionally, though much more rarely, encountered double burials, that is, the remains of two adults were found placed in a single incinerary urn, and likewise, so far as could be judged from their much calcined and broken remains, these double burials included the bones of both male and female persons." [1]

Leaving aside the other details and explanations furnished by Mr. Cushing, however interesting and valuable, I shall only add that the urn found northeast of Zacaton may perhaps in this case indicate a third kind of burial. This isolated instance, however, proves nothing about the possible extent of such a custom. As far as the burial methods in houses, mentioned by Mr. Cushing, are concerned, it is well to note here that in the excavations which he afterwards made at the old pueblo of Halona near Zuñi, many skeletons were found buried in the rooms. The house burials at Tempe are therefore no exceptional feature.

I have copied thus extensively the remarks of Mr. Cushing for the reason that his explorations were conducted on a larger scale and with larger means than any other in the

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[1] *Preliminary Notes*, p. 169.

Southwest, and that the volume from which I transcribe them has not been extensively circulated in this country. We must, however, wait for his final and detailed report, before we can judge of the decisive importance of the above statements. As he himself says, the paper in which the above extracts are embodied had to be prepared with great haste, to which I can bear testimony, as well as to the great difficulties resulting from ill health on his part.[1]

Between Zacaton and Casa Grande the signs of ancient habitations, I am told, are quite numerous. At Casa Grande I could proceed to some explorations, although excavations were of course impossible.

I refer to Plate I. Figure 59, for the general disposition and relative extent of the ruins. The whole area over which the ruins clustering around the "Great House" are disseminated is about nineteen acres; but they are divided, as will be seen, into two groups, separated by about one hundred meters, and the "Great House" stands near the southwestern corner of the southern group. As stated in my report of 1883, the northern group includes an artificial mound resting on an artificial platform, very similar to the mound at Tempe, and bearing on its summit the vestiges of buildings. As at Tempe, the platform has along its rim traces of a wall of circumvallation, and in its southwestern corner rise two lesser mounds, both of which were manifestly buildings.[2]

Of the Casa Grande, as well as of the mound in question, I subjoin ground plans on the same scale. My object is to show the similarity in disposition of both edifices. The Casa Grande itself does not rest on an artificially raised basis, but is built on a piece of ground naturally higher than the level of the northern group, and especially higher than the mound on the latter. But, allowing for these differences, the resemblance is otherwise striking, and we may well ask, Why in one case was the building placed on the surface of the ground, and why in the other did it require a double substructure? I have attempted to suggest an explanation in my letter to the Institute.

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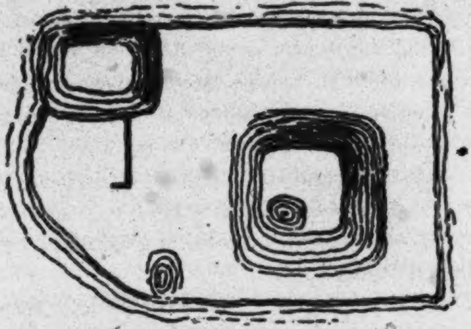
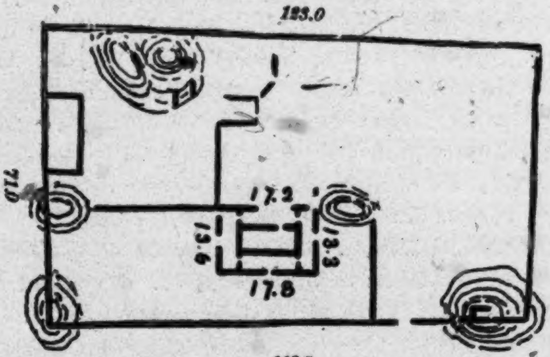
[1] Ibid., p. 163. "By reason of the great haste with which this paper must be prepared, by reason also, alas, of the illness with which to the extreme of endurance I am oppressed while dictating it; brevity, system, logical sequence, and finish must be, to a large extent, sacrificed."

[2] *Fifth Annual Report*, p. 67.



Mound and Platform. — Scale, 1 inch = 40 meters.



Plan of Casa Grande, and Enclosure. — Scale, 1 inch = 40 meters.

"Along the Lower Gila and Salado the copious showers which pour down on the higher mountains are conducted to the plain by 'arroyos,' which frequently flood the surrounding country for hours. The adobe of to-day suffers less from these sudden overflows; but the so called concrete of the ancient buildings cannot stand the gnawing effects of water at their base. The Pimas surround their permanent winter houses by semicircular ditches for the purpose of deflecting the currents. I have noticed that artificial mounds occur almost exclusively on the lowest side of each settlement. Even at Old Fort Reno the drainage is such that a sudden cloud-burst might have endangered the houses unless they were placed on a level raised above the ground. The mounds, therefore, seem to have been the product of local causes, and not a distinctive feature applied to a certain class of buildings like the Teo-calli of Mexico. In one and the same region there are ruins like the Casa Grande and Tempe, containing buildings on mounds and others on the level ground; other ruins where there are no mounds at all; and still others where the settlement is confined to a mound.

"I am therefore of the opinion that the mound building of this part of Arizona was a protective device, called forth by the peculiar conditions of drainage, which threatened structures resting on the natural level. I will add here that the artificial eminences are found at Pueblo Viejo, on the Upper Gila, along the whole route which I travelled; but that out of forty-seven ruins or groups surveyed by me I have met with only five where the mounds were very distinct. Four of these are on the Lower Gila and Salado, and one in the Sierra Masăsar. But at Pueblo Viejo and at San Carlos there are indications that some of the buildings also rested on elevated platforms."[1]

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[1] *Fifth Annual Report*, p. 72.

From this opinion I have still no reason to dissent, although the existence of artificial mounds on the Lower Gila and Salado has been denied. While heartily glad to be corrected in my views in case they should prove incorrect and based upon incomplete observations, I repeat them here, hoping that they may conduce to future exhaustive investigation.

The walls of the Casa Grande are unusually thick, measuring 1.22 m. (4 feet), and even the partitions 0.92 m. (3 feet). At the Casa Blanca their thickness is only 0.50 m. (22 inches), as already said, and in other ruins between Casa Grande and Florence, 0.92 and 0.60 m. (3 and 2 feet) were measured by me. In the houses which Mr. Cushing examined about Tempe varying thickness of the walls was, as he told me, also observed, and some of them were as wide as at Casa Grande. The considerable width of the walls of Casa Grande is therefore not an unusual feature.

The doorways are higher and wider than in northern ruins, so are the light and air holes. The roof and ceilings, as far as traceable, belong to the usual pueblo pattern, that is, they consist of round beams supporting smaller poles, on which rested a layer of earth. All the woodwork is destroyed except the ends of the beams, but I was informed that a few posts of cedar wood were still visible some years ago. Cedar only grows at some distance from Casa Grande, but this was no obstacle to the patient and obstinate Indian. I could not find any trace of stairways or ladders. It was remarked in the last century, that the Apaches were the destroyers of the woodwork in the building,[1] and something similar was told me; but to what extent this is true, I am unable to determine.

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[1] *Notice de la Grande Maison dite de Mootecusoma* (in *Cibola*, Appendix, p. 386): "Nous ne trouvâmes aucune trace d'escaliers; nous pensâmes qu'ils étaient de bois, et qu'ils furent brulés lorsque les Apachès incendièrent l'édifice." This was written by Father Pedro Font, a Franciscan who accompanied Father Garcés in 1775.

Of the other shapeless mounds surrounding the Great House, or composing the northern cluster of the ruins, I am not in a position to say anything except that they indicate two-story edifices, long and comparatively narrow. Their size without exception falls short of the dimensions of northern communal pueblos, and, notwithstanding the extensive area occupied by the ruins, the population cannot have been large. I doubt whether it exceeded a thousand souls. Almost every inch of the ground is covered with bits of pottery, painted as well as plain, and I noticed some corrugated pieces. They all resemble the specimens excavated by Mr. Cushing from the vicinity of Tempe, and what I saw of those specimens convinces me that they belong to the class common to the ruins of Eastern and Central Arizona in general. There was among the potsherds which I picked up myself a sprinkling of pottery that closely resembled the modern ware of the Pimas and Pápagos; but as I had already noticed the same kind on the Rio Verde, and had been forced to the conclusion that they were ancient, I am loath to consider them as modern at Casa Grande. Of other artificial objects, I saw broken metates, and heard of the usual stone implements. The culture, as indicated by such remains, offers nothing at all particular.

The profusion of pottery scattered far beyond the area covered by the buildings has caused the impression that the settlement was much larger that I have represented it to be; I have, however, no reason to modify my opinion. I have already stated that clusters of ruins are numerous about the Gila, and at no great distance apart. Intercourse between these settlements, if they were contemporaneously inhabited — of which there is as yet no proof — must have been frequent, and the winds and other agencies have contributed towards scattering potsherds over much larger expanses than those which they originally occupied. The acequias which run parallel to the Gila in this vicinity, and of which there are distinct traces, are usually lined with pieces of pottery which leads the untrained observer to draw erroneous impressions.

On the southwestern corner of the northern group of the Casa Grande cluster stands the elliptical tank which is indicated on Plate I. Figure 59. Its greatest depth is now 2½ meters (8¼ feet), and the width of the embankment surrounding it varies between eight and ten feet. A large mezquite tree has grown in the centre of this artificial depression. As the tank stands on the southwestern extremity of the northern, and not one hundred meters (three hundred feet) from the southern group, it was probably common to both.

Between Casa Grande and Florence the distance eastward is nine long miles, and the country shows no change. Several ancient irrigating ditches are seen on the road, some of which are quite deep. Nowhere did I notice any trace of a lining or casing, as at Tule; the raised banks or rims seemed to be only of the soil. Ruins in scattered clusters are numerous, all of the same character. In one place I found an elliptical tank almost as large as the one at Casa Grande, and presenting a similar appearance. Wherever walls protruded, the material was the same, only thinner. This may be due to the fact that they were merely partitions, and that I nowhere could measure the outer ones, which have crumbled. In short, from Casa Blanca in the west — and probably some distance beyond — a line of ruins extends to east of Florence, and probably as far as Riverside, or a stretch of more than sixty miles. These ruins, however, do not reach very far inland, although some are scattered throughout the Papagueria.

At this day Casa Grande shows two stories with vertical walls on all four sides, and from the centre rises a third story like a low tower. Whether the latter originally extended over the whole building or not, I am unable to determine. As this question is related to the early historical notices concerning the edifice, I shall briefly refer to them here.

The discovery of Casa Grande seems to be due to the celebrated Jesuit, Eusebius Franciscus Kuehne (better known as Father Kino), who heard of the Casa Grande in 1694 and visited it in the same year.[1] But the earliest description is due to Father Kino's companion, Captain Matéo Mange, and dates from three years later, when the latter accompanied the missionary on his second visit. The building is described as being four stories high.[2] The Franciscan Father Font, who visited it in company with Father Garcés in 1775, declares that the Casa had three stories, but that, if what the Indians stated was true, there must have been four, one of which he judged may have been subterranean.[3] This agrees perfectly with the present condition of the Great House. Father Jacob Sedelmair, who saw the house in 1744, speaks of four stories, and also of twelve other structures around it still partly intact, but lower than the main one.[4] Thus it seems that the greatest decay occurred between the years 1744 and 1775, and that it did not have originally more than four stories. This is corroborated by Mr. James Russell Bartlett in 1852.[1] Three of the four stories at least had vertical walls on all four sides, but the fourth had the shape of a central tower or lookout.

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[1] Father Francisco Xavier Alegre, *Historia de la Compañia de Jesús en la Nueva España*, vol. iii. p. 83: "En este viaje tuvo noticia del Rio Gila, y de los grandes edificios que se ven en sus cercanias." *Apostólicos Afanes de la Compañia de Jesús*, p. 253. Sedelmair, *Relacion*, p. 845.

[2] *Relacion del Estado de la Pimeria*, p. 804: "Y vimos toda la vivienda del edificio que es muy grande de cuatro altos, quadradas las paredes y muy gruesas como de dos varas de ancho del dicho barro blanco. Y aunque estos Jentiles lo han quemado distintas veces, se ven los cuatro altos con buenas salas, aposentos y ventanas curiosamente embarradas por dentro y fuera de manera que estan las paredes encaladas y lisas con un barro algo colorado, las puertas muy parejas."

[3] *Notice de la Grande Maison*, p. 386: "Enfin, on reconnait que l'édifice avait trois étages: si ce que disent les Indiens est vrai, et á en juger de ce qui reste, il y en avait quatre, en comptant un étage souterrain." Arricivita, *Crónica Seráfica*, p. 462: "Aunque se conoce que la casa tenia tres altos."

[4] *Relacion*, p. 847: "La una de las Casas Grandes es un edificio grande, el principal cuarto del medio de cuatro altos. . . . Á tiro de arcabuz se ven otras doce casas medio caidas de paredes gruesas tambien y todos los techos quemados, menos un cuarto bajo con unas vigas redondas lisas y no gruesas, que parecen de cedro ó sabino y sobre ellas otates muy parejas, y sobre estos una torta do

It remains now to glance at the purpose of these "great houses," which every cluster of ruins on the Gila and Salado includes, whenever it is of any importance or extent. Mr. Cushing, who also noticed this feature, calls the buildings temples. I have no doubt they may have been used incidentally for worship; still it was probably not their exclusive object. It should be remembered that we have in the first half of the seventeenth century descriptions of analogous buildings then actually used among some of the natives of Central Sonora. Those natives were the Southern Pimas, or "Nébomes," kindred to the Northern Pimas, who occupy the banks of the Gila near Casa Grande, Casa Blanca, and at intermediate points. Father Ribas, the historiographer of Sonora, says that the villages of the Nébomes consisted of solid houses made of large adobes, and that each village had besides a larger edifice, stronger, and provided with loopholes, which served, in case of attack, as a place of refuge or citadel.[2] The purpose of this building was not merely sur-

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argamasa, y barro duro." This is a good description of a roof of the well known pueblo type.

[1] *Personal Narrative*, vol. ii. p. 272: "Three stories now stand and can plainly be made out by the ends of the beams remaining in the walls, or by the cavities which they occupied; but I think there must have been another story above, in order to account for the crumbling walls and rubbish within. The central portion or tower, rising from the foundation, is some eight or ten feet higher than the outer walls, and may have been several feet, probably one story, higher when the building was complete." Compare also, for other descriptions by modern writers, H. H. Bancroft, *Native Races of the Pacific States*, vol. iv. pp. 625 to 633.

[2] *Historia de los Trivmphos de Nvestra Santa Fé*, p. 360: "Poblados estaban los Nebomes á orillas de arroyos de buenas aguas y corrientes: sus casas eran

mised by Father Ribas, who had means of acquiring personal knowledge, having been one of the early missionaries in Sonora.[1] The Spaniards had an opportunity of experiencing its use to their own detriment, and the edifice was so strong that its inmates had to be driven from it by fire.[2] Such a place of retreat, in case of attack, the Casa Grande and analogous constructions in Arizona seem to have been. The strength of the walls, the openings in them, their commanding position and height, favor the suggestion.[3] That they may also have been inhabited is not impossible; Mr. Cushing's investigations seem to prove it.

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mejores y mas de assiento que las de otras naciones: porque eran de parades de grandes adobes, que hazían de barro, y cubiertas de açoteas, y terrados. Algunas dellas edificauã mucho mayores, y con troneras á modo de fuertes, y proposito para si acometiessen enemigos, recogerse á ellas la gente del pueblo y valerse de su flechería."

[1] Father Ribas was born at Cordova in Spain, and was in Sonora between 1604 and 1640. José Mariano Beristain de Souza, *Bibliotheca Hispano-Americana Setentrional*, ed. 1883, vol. iii. p. 25.

[2] Ribas, *Historia de los Trivmphos*, p. 372: "Pero nuestras espias dieron auiso, que el mayor numero de gente estaua fortificado en su pueblo y casas de paredes de adobes, y vna dellas grande, con sus troneras que les seruía de fortaleza. Dõde en tiempo de guerra se recogía la gente menuda, y por las troneras jugaban á su saluo de su flechería. Acometió el Capitã cõ sus soldados á esta casa fuerte. . . . Acometió á entrarla el Capitan con sus soldados, poniẽdo á las troneras las adargas pequeñas, como broqueles de q̃ usan. Defendianse valientemente los enemigos, y auían ya herido á dos soldados Españoles y otros Indios amigos. En esta ocasion mandó el Capitan, que se arrojasse fuego por las troneras dentro de la casa, donde no murieron no pocos de los enemigos, con el humo y fuego."

[3] To this should be added the wall of circumvallation, and possibly the buildings, some of which were more than one story high, attached to it inside of the enclosure. The thought that the latter might have also had a defensive object is expressed by Father Font (*Notice de la Grande Maison*, p. 385): "Tout autour sont des murs qui indiquent une enceinte ou muraille qui renfermait cette maison et d'autres édifices, surtout sur le derrière, où il parait qu'il y avait une construction comme un château intérieur ou réduit." Arricivita, who has only given another version of Font's description, is still clearer (*Crónica Seráfica*, p. 462): "Y á su rededor hay ruinas que parecen de muralla que cubría la casa y otros edificios, en cuyas esquinas parece había castillos ó atalayas; pués en una se conserva un pedazo con divisiones, y un alto."

In connection with all these questions it becomes interesting now to examine whether the Indians dwelling on the banks of the Gila at present, and who inhabited them when first visited by Europeans, have or had any traditions or folklore concerning the origin and fate of the ancient settlements there.

As early as 1697 Father Kino, when he visited the Casa Grande for the second time, interrogated the Pimas and gathered from their talks that the Great House had been built by a mighty chief called Siba, or Sibuni, who lived in it. He also inferred that the said chief had come thither from the north.[1] Father Sedelmair, in 1744, heard a similar tale.[2] Father Font, thirty-one years later was told: "The halls were lighted, from what remains to be seen, through the doorways only, and through round holes made in the walls looking to the rising and setting sun. The Indians told us that it was through these apertures, which are tolerably large, that the sovereign, whom they call the Unpleasant [literally "bitter"] Man, looked at the sun when it rose and set, in order to salute it."[3]

Mr. J. D. Walker, an old resident in the vicinity of Casa

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[1] Mateo Mange, in *Documentos para la Historia de Méjico* (series iv. vol. i. p. 384) calls him Sibuni. On page 282 he writes: "Y que las fabricaron unas gentes que vinieron de la region del Norte, llamado el Siba que según su definicion en su idioma es el hombre amargo ó cruel y que por las sangrientas guerras que los daban á los Apaches y 20 naciones con ellos confederados, muriendo muchos de una y otra parte despoblaron y parte de ellos por disgusto se dividieron y volvieron para el Norte, de donde años antes habian salido, y lo mas hácia el Oriente y Sur."

[2] *Relacion*, p. 847: "Que dicen las fabricaron unas gentes que vinieron de la region del Norte, llamado el principal el Siba, que en el idioma de los Pimas es el hombre amargo y cruel, y que por las sangrientas guerras que les daban los Apaches y veinte naciones con ellos confederados, muriendo muchos de una y otra parte, se despoblaron y parte de ellos por disgustados se dividieron y volvieron para el Norte, de donde años antes habían salido, y los otros hácia el Oriente y Sur." This is manifestly copied from Mange.

[3] *Notice de la Grande Maison*, p. 386.

Grande, who has been to me personally an excellent friend and valuable informant, told me this tale.

The Gila Pimas claim to have been created on the banks of the river. After residing there for some time a great flood came that destroyed the tribe, with the exception of one man, called Ci-ho. He was of small stature, and became the ancestor of the present Pimas. The tribe, beginning to grow in numbers, built the villages now in ruins and also spread to the north bank of the river. But there appeared a monstrous eagle, which, occasionally assuming the shape of an old woman, visited the pueblos and stole women and children, carrying them to his abode in an inaccessible cliff. On one occasion the eagle seized a girl with the intention of making of her his wife. Ci-ho thereupon went to the cliff, but found it impossible to climb. The girl, who was still alive, shouted down to him the way of making the ascent. When the eagle came back, Ci-ho slew him with a sword, and thus liberated his people from the scourge.[1]

After this, quite a long period elapsed during which the Pimas remained in undisturbed possession of their adobe settlements. Whether Casa Grande was one of the oldest of them I did not ascertain, but it is stated that at one time a powerful chief called Ci-va-no lived there, after whom the Pimas call the place Ci-va-no Ki, or "House of Civano." He is said to have had twenty wives, each of whom wore on her head, like a head-dress, the peculiar half-hood, half-basket contrivance called Ki-jo. Civano's son is said to have settled on Lower Salt River, but the villages on the Rio Verde were, as already stated, inhabited by a tribe distinct from and hostile to these ancient Pimas. Casa Blanca and the ruins near Zacaton remained inhabited after Casa Grande had been abandoned. The latter is reported to have been destroyed by a foreign tribe that came from the east in three bands or hordes. The villages further west still held their own for some time, and it is even said that the people of Zacaton made war upon their kindred at Casa Blanca and blockaded that settlement by constructing a thorny hedge around it. Through the artifices of the medicine-men, the hedge turned into a circle of snakes.

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[1] For another version of this tale, see Bancroft, *Native Races*, vol. iii. p. 79.

It was while most of the Pima pueblos were still in existence that a part of the stock seceded and moved southward into Sonora, and became the Southern Pimas, or Nébomes. The Gila Pimas continued to live on their old range, but with the pressure from enemies, consequent famine, and epidemics, they grew weaker and weaker; one village after another was abandoned, and the remnants of the tribe, despondent of ever recovering their ascendency, scattered, some over the Papagueria in Southwestern Arizona, while some remained huddled together in the frailer dwellings of easier construction in which they reside at this day.

The gist of these traditions is that the Pimas claim to be the lineal descendants of the Indians who built and inhabited the large houses and mounds on the Gila and Lower Salado Rivers, as well as on the delta between the two streams; that they recognize the Sonoran Pimas as their kindred, who separated from them many centuries ago; that they attribute the destruction and abandonment of the Casa Grande and other clusters now in ruins to various causes; and, lastly, that they claim that the villages were not all contemporaneously inhabited. Further than that, I do not at present venture to draw conclusions from the traditions above reported; but enough is contained in them to justify the wish that those traditions may be collected and recorded at the earliest possible day, and in the most complete manner, in order that they may be critically sifted and made useful.

The western limit of ancient architecture on the Gila seems to be about Gila Bend; at least I have been unable to learn of any ruins farther west. Along the Colorado River it is stated by Mr. H. H. Bancroft that no ruins exist.[1] Between that river and Gila Bend the country is flat and sandy, and what does not lie immediately on the stream is mostly destitute of water. It is therefore presumable that no ruins will be discovered there, except rock paintings and carvings, which, while they may in part be due to former sedentary tribes, are just as likely also to be the work of nomads. The extreme western limit of pueblo architecture, in the general sense of vestiges of houses built of more durable material than wood or reeds, appears therefore to be the 113th meridian in the latitude of 33°.

South of the Gila I have made no investigations of any consequence, but I have heard that throughout the so called "Papagueria," or that dismal stretch occupying the greatest portion of Southwestern Arizona, ruins similar to those on the Gila, of the same building material, and having a similar arrangement, are occasionally met with. I also heard of cliff-houses in the Sierra de los Ajos, near the frontier of Sonora. To what extent the information may be reliable, I cannot tell. Near the Picacho, an isolated rock with precipitous sides rising near the Southern Pacific Railroad line fifty miles west of Tucson, I saw low mounds and an elliptical tank. As the country is desolate and dry, it is not to be wondered at if vestiges of sedentary aborigines should prove gradually to grow less, and finally disappear in the direction of the south. Of the environs of Tucson and the country to the east of it, the valley of San Pedro, and the boundary lines of Sonora, as far as I was able to examine, I shall treat in the following chapter of this report.

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[1] *Native Races*, vol. iv. p. 619.

If now we cast a retrospective glance at the fragmentary material above presented, it strikes us first that, as soon as we leave the colder pine regions of the Apache reservation, a new variety of Indian architecture appears. I purposely say a new variety, and not a new type; for the nucleus of it remains the small house already known to us in the northern Southwest. Just as, however, in the north, the small house has become, through aggregations brought about by force of circumstances, climate, and necessities of defence, the great communal structure called the "Pueblo," so in the south, where conditions of subsistence have been more favorable and there has been increase of population, it has reverted to larger clusters also, with the difference that the terraced plan was mostly abandoned, thicker walls were built, and the means of ventilation especially were suited to the exigencies of a hot climate. The artificial objects show a decided uniformity over the whole area, and the culture was fundamentally the same as farther north, where distinct varieties of buildings prevail. The change which that culture has undergone is one in degree only, and not one in kind, as Mr. Cushing's explorations at Tempe have amply proved.

But the archæological remains give us no clue to the people to whom they are due, except that they were sedentary Indians. Ethnological investigations alone can in time solve the riddle of the who and whence. The older Spanish authorities contain very slight information on these points. Castañeda says that the "Red House," which I believe to have been located near Fort Grant, was constructed by a tribe that came from Cibola, that is, from the north. The Sobaypuris informed Father Garcés that the ruins on the Gila were those of edifices constructed by people who had come from Moqui or from the north. A similar tale is connected with Casa Grande.

The Tontos, or Kohunes, a Yuma tribe, which inhabited the regions of Upper Salt River and the basin north of it, have disappeared as an independent cluster. There are some indications that these Indians were not formerly as wild as they appear to us now that they have become incorporated with the Apaches, and their folk-lore also should be studied. The Apaches appear as a later intrusive stock, yet they may have preserved important recollections of the time when they first drifted into Arizona, which was certainly earlier than the sixteenth century. The Navajos also may know something concerning movements of tribes from the northern sections of Arizona towards southern latitudes.

The only traditions so far studied, in a superficial manner, are those of the Pimas. I have stated that they claim to have originated on the Gila, or, so to speak, *in situ;* yet their language is a Shoshonee dialect. But they are also positive about their ancestors having been the builders and inhabitants of the most ancient important edifices of Arizona.

It need not surprise us to find associated with the principal ruins on the Gila the myth of their having been "stations" of Central Mexican tribes on their supposed wanderings from northern regions towards the tropics, which has been connected with them from the time they were first discovered by Europeans. Nor need it surprise us to find the Montezuma story attached to the past of Casa Grande. Neither of these tales possesses any safe historical basis. That northern tribes have drifted southward in the course of time seems very likely, but whether they preserved their original composition and their language to a degree sufficient to warrant the conclusion that they were still the same people in Central Mexico which they had been in more northern latitudes, is unknown. The Montezuma tale is certainly not a part of original Southwestern folk lore. The Spaniards and their Indian followers from the south brought it to the north, where it has hovered since around the principal ruins, like floating mist clinging to the slopes of higher mountains, easily dispelled by either the bright light and warmth of ethnological study, or the fresh breezes of historical criticism.

XI.

TUCSON, THE UPPER RIO SAN PEDRO, THE SIERRA HUACHUCA, AND THE SIERRA CANANEA.

THE word "Tucson" is said to be derived from "Styucson," which signifies Black Creek in the Pima language according to the Hon. J. D. Walker. The same authority informed me that "Arizona" probably was a corruption of "Örli-son," or little creeks.[1]

The course of the Rio de Santa Cruz, near the banks of which Tucson is situated, terminates as a perennial stream only a short distance from the city. The Santa Cruz River rises in Northern Sonora and flows northward, and is therefore, nominally at least, a tributary of the Gila, but never do its waters directly reach it. While the San Pedro flows constantly as far as its mouth, the Santa Cruz sinks and disappears at a distance of at least fifty miles from the nearest point on the Gila. An almost completely waterless area divides that river from Tucson. We have in this another proof that it was not the Santa Cruz River which Fray Marcos of Nizza, and after him Coronado, followed on their journeys in quest of the pueblos of Cibola (Zuñi), but the San Pedro, which gives an uninterrupted line of water supply from the head-waters of the Sonora River to the Gila.

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[1] The name "Arizona" first appears about the middle of the last century; it was applied to the country south of Tucson, where there appears to have existed a mine of that name.

Although the level on which Tucson stands is fertile if irrigated, the mountains surrounding it in every direction appear mostly of frightful aridity. In the southwest they loom up in detached masses of inconsiderable altitude and insignificant profile, the peak of Babo-quivari excepted, which rises on the horizon, at a distance of sixty miles, in a bold and precipitous mass. In the northwest, towards Casa Grande, stretches a bleak plain dotted with monstrous cactuses and other singular forms peculiar to the flora of Arizona. The jagged outline of the Picacho appears like a blue phantom far away. The low ranges of the Tortilla skirt the north, connecting with a towering chain that overlooks Tucson by nearly seven thousand feet, although in a direct line its base is only fifteen miles distant. This chain is the Sierra Santa Catalina, a rugged mass, thinly overgrown with scrubby arboriferous plants. It skirts the San Pedro River on the east, thus separating it from Tucson. In the south looms up the Sierra de Santa Rita, the highest chain of Southern Arizona.[1] Its picturesque crests are covered with loftier trees.

The Papagueria contains, as I have already stated in the preceding chapter, vestiges of ruins similar to those on the Lower Gila and Salado Rivers; but they are not numerous. Around Tucson I have heard ruins spoken of, although I did not see any myself except at the Estanque Verde, sixteen miles east of the city, where, beneath dense and thorny thickets, I noticed the remains of a few scattered houses of the detached dwelling type. They were too much ruined to allow measurement, and I could not detect whether any enclosures had originally connected them or not. The few potsherds belonged to the general type of Southern Arizonian ruins, and my friend, Dr. J. B. Girard, U. S. A., possesses a handsome earthen canteen in the shape of a duck, corrugated and painted red, which was obtained at the Estanque Verde.

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[1] The elevation of the Santa Rita chain is supposed to be about 10,500 feet.

Along the course of the Santa Cruz stream, south of Tucson, ruins are said to exist, but no description of them could be obtained. The Sobaypuri branch of the Pima village Indians held that country in the seventeenth century, and for a long time previous. It is therefore advisable to bear in mind, that such vestiges of ancient habitations may be those of Sobaypuri settlements. When the latter were first met with, they were composed of frail structures; but still it is presumable that, as the villages were of a somewhat permanent character, the buildings had at least substantial foundations, which must have left traces similar to those still seen of older Pima settlements on the Gila. It is difficult to establish which places were inhabited in the seventeenth century and which not. The names are Pima, like Bac (Vatki), Tubac, and Tumacacori. At the place first named, where now stands the remarkable Jesuit church of San Javier del Bac, there was a considerable settlement of Pimas in 1697;[1] and it is likely that at the other two, or at least in their immediate vicinity, either Pimas or Sobaypuris were settled. The first attempt at building a church at San Javier appears to have been made in 1699;[2] but the present church dates properly from the middle of the past century.[3] At Tucson, the Sobaypuris established themselves about 1763, under the pressure of their hereditary foes, the Apaches.[4] In 1764, Tubac, Tu-

[1] *Relacion del Estado de la Pimeria*, p. 798.

[2] According to Alegre, *Historia de la Compañia de Jesús*, vol. iii.

[3] The oldest church books of the mission of San Javier in existence, when the present apostolic vicariate of Arizona was established, begin in 1720. *Libro de Partidas*, MS. Father Alexander Rapicani was the first priest who made entries. In 1751 the mission was abandoned owing to the uprising of the Pimas, and only reoccupied three years afterwards.

[4] *Descripcion Geográfica de Sonora*, cap. vi. P. Manuel de Aguirre, *Carta al*

macacori, Calabazas, and Bonostao were the principal Pima villages administered along the upper course of the Santa Cruz River.[1] Arivaca, which lies to the west, had been abandoned and destroyed by the Pimas themselves in 1751.[2]

Instead of penetrating to the west of Tucson into the desolate Papagueria, with small prospect of determining anything that had not been abundantly established, — namely, the gradual disappearance of aboriginal ruins in that direction, — I selected the upper course of the San Pedro River for a field of operations. I was prompted to this in part by my desire to follow, on my way to Sonora, the probable route of Fray Marcos of Nizza and of Coronado. I had noticed, while at Casa Grande and at Tucson, that the former could not have been the "Red House" spoken of by Castañeda, and that it was quite improbable that the Spaniards should have descended the Santa Cruz stream. The San Pedro remained the only likely route for them to have taken, and in investigating it I secured the advantage of combining antiquarian interest with historical. At the same time I should approach closer the eastern border of the territory of ruins in Arizona. I will quote here what I wrote to the Institute in the spring of 1884: —

"The dismal barrenness of the country west of the Rio Grande, as far as the Paso del Dragon in Arizona, on a line running due west of Fort Selden, and south to the Mexican boundary, precludes the possibility of important traces of aboriginal occupation being found there."[3]

Dragoon Pass lies due east of the San Pedro valley, and it

Teniente Coronel D Juan de Pineda (in "Doc. para la Historia de Mexico," 4th series, vol. i. p. 125).

[1] *Descripcion Geográfica*, p. 582.

[2] Ibid.

[3] *Fifth Annual Report*, p. 89.

is not superfluous on this occasion to cast a glance at the orography of Southeastern Arizona.

I have already spoken of the Santa Catalina chain as bordering the Rio San Pedro on the west. The southern termination of that chain is called Sierra del Rincon and its eastern slope descends into the San Pedro valley near Tres Alamos. South of that range lies a pass through which the Southern Pacific Railroad runs from Tucson to Benson, beyond which extends the Sierra Mesteña, also called Whetstone Mountain. This is followed by the Sierra Huachuca, which reaches the Mexican boundary line by its southern extension, the Mariquita. There is consequently, east of Tucson, a cordillera skirting the San Pedro valley on the west, and running approximately in the direction of north-northwest to south-southeast. The Santa Rita Mountain lies west of this cordillera and east of south of Tucson.

East of the San Pedro valley a parallel series of ranges arises. Beginning south of the Gila, with the isolated peak of Mount Turnbull and the transverse chain of the Santa Teresa Mountains, it takes a southeasterly direction with the Sierra Salitre, — a name recently corrupted into Galiuro.[1] This terminates north of Dragoon Pass, south of which the Dragoon Mountains begin along the eastern side of the San Pedro valley and merge into the Sierra Peñascosa, which abuts against the Sierra de la Mula, which extends as far as the Sonora frontier. A third cordillera looms up still farther east. It takes its origin south of the Gila, in Mount Graham and the Sierra Bonita, then follows the Pinaleno chain as far as the line of the Southern Pacific. South of the railroad rises the formidable Sierra Chiricahui (properly Chihui-cahui, or Turkey Mountains), which in turn is followed by the Sierra Guadalupe, part of the latter extending into Mexican territory. A fourth cordillera stretches from the Gila to the New Mexican frontier at Stein's Pass, and is constituted by the southern Gila range and by the Peloncillo.

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[1] This is one of the most interesting changes of the kind; it can be traced on the maps, through Salitre, Calitre, Calitro, to Galiuro, as it appears to-day.

Between these four cordilleras lie, counting from the boundary line of New Mexico towards Tucson, three longitudinal valleys, only one of which contains considerable vestiges of ancient dwellings, — the most western one, or that of San Pedro. It is also the only one having perennial water. The others are arid, and only scantily provided with springs. The mountains themselves present a forbidding appearance, which is deceptive, for the interior of the Chiricahui, for instance, has pleasant spots, good forests, and several permanent water sites and springs. I have heard of small ruins having been noticed in the interior of several of these chains, but cannot vouch for the correctness of this information. If there are any, they cannot be numerous. The course of the Rio San Pedro, however, shows abundant traces of former habitation.

I reached that stream at Tres Alamos, coming from Fort Lowell near Tucson by way of the Posta Quemada and the ranch of Miguel Torres. Near the Posta, where a beautiful spring issues on the property of Mr. Lick, there are traces of ancient foundations of stone; and Mr. Lick obtained, from a cave one mile higher up than his house, a great many deer-prongs, skinning-knives of wood, and broken pottery. South of the Posta, on the level extending along the base of the Sierra del Rincon, lies the hamlet of Pántanos, near the railroad, and there ruins exist, from which, among other objects, stone axes have been taken.

From the Posta Quemada the ground rises along the slope of the Rincon chain to the divide. It is arid, and the only vegetation is Yucca, Dasylirium, and the colossal Zahuaros, with tall grass covering the ground. At the ranch of Torres, near the divide, I found ruins, nearly obliterated however, and covered by mezquite thickets. They form low mounds, measuring about 15 meters (48 feet) on each side, with hardly perceptible vestiges of stone or rubble on their surface, and covered with chips of flint and basalt. The pottery fragments were mostly plain black and red, brown, gray with indistinct reddish decorations, and yellow with traces of red lines. No corrugated or indented ware appeared, and the potsherds were, on the whole, much dilapidated and worn. Where the house of Torres stands, there had been a similar mound, from which was taken a metate, but no stone axes or other implements. The ruins have the appearance of either great age, or else much wearing away by summer rains, which are abundant enough to justify the selection of the site for the raising of primitive crops. But I was at at a loss to discover whence the inhabitants had obtained their drinking water. If from some spring, it had not been discovered seven years ago, at the time of my visit; nor could I find any trace of a reservoir. At all events, the settlement was small, and seems to have been the only one in that vicinity. Beyond the divide begins a long descent towards the San Pedro River, over dreary slopes, bare and worn; after nine miles of a monotonous ride the valley is reached.

The river, now rendered muddy by the washings of the mines worked on its upper course near Contention and Charleston, runs in a cut which is from eight to twelve feet deep. On both sides of this cut, but sometimes, however, only on one, extends a bottom land which appears to be very fertile. Then comes a higher terrace, gravelly, and partially covered with low and thorny vegetation. The whole would present a desolate appearance were it not for occasional fields and cottonwood groves. At Tres Alamos there are ruins, and thence on to the north they were said to be numerous, as far as the mouth of the San Pedro. Where it approaches the Gila, it is enclosed by rocky gorges, and it is not surprising to hear of caves in the walls of the cañon in which many "relics" are said to have been found, although I could ascertain nothing about their character. The climate at Tres Alamos is mild, snow seldom falling; and the summer heat, although the thermometer frequently rises to 100° in the shade, is said not to be oppressive.

The majority of ruins on the San Pedro seem to extend along its lower course, north of Tres Alamos. In a direct line the distance from the latter point to the junction of the stream with the Gila is about sixty miles, and it strikes me that this was the stretch on which Fray Marcos found the last villages of Indians before he entered the uninhabited region between the Gila and Zuñi.[1] Whether he, and Coronado afterwards, followed the San Pedro to its mouth, or whether he turned to the right so as to reach the Arivaypa and the site of Fort Grant, is not quite clear from the documents. I strongly incline to the latter conclusion, since the lower course of the San Pedro is almost impassable on account of the narrowness of the defile.

The Sobaypuris on the San Pedro were in commercial intercourse with some of the northern pueblos. Fray Marcos mentions among other objects which he saw in use turquoises brought from Zuñi. If the report concerning the existence of caves along the Lower San Pedro is true, as I believe, explorers should not be startled at finding in such places objects peculiar to the religious and house life of the natives of New Mexico and Northern Arizona. Such finds should not be taken as evidence of anything but aboriginal commerce in ancient times.

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[1] *Relacion*, p. 339.

At Tres Alamos, about one mile north of the house of Mr. Thomas Dunbar, I examined quite a good-sized ruin, standing on the terrace above the river bottom, and partly overgrown by mezquite and other shrubs. A gulch divides the ruin into two groups. Besides low mounds and traces of rubble foundations there are polygonal enclosures, containing very little pottery, the purpose of which I am at a loss to divine. Some of the mounds show traces of partitions of rubble, indicating rooms of medium size. An abundance of flakes of flint, basalt, and trap are scattered over the mounds. Prismatic corn-crushers (manos) occur, and potsherds resembling in every way those noticed at the ranch of Miguel Torres. The ruins are considerably dilapidated, and, so far as I could learn, they were the only ones in that vicinity.

Nor could I ascertain anything about ruins between Tres Alamos and Benson, the northern terminus of the Sonora Railroad. It lies in the valley, which there presents a most unprepossessing appearance. South of it, and as far as the Mormon settlement of St. David, I noticed no trace of aboriginal remains. I copy from my Journal: —

"The valley presents throughout the same appearance as far as St. David, the Mormon settlement. The bottom is from 1½ to 2½ miles wide, and the gravelly bluffs encroach upon it from time to time, or here and there rises an isolated hill, or group of hills, or a little mesa. For six miles I followed the banks, and satisfied myself that there are no ruins, as the bluffs are too steep and too sharply crested. There may be some on the east side, where the flat appears to be wider; but the people all agree in asserting that there are none. There is much more mezquite growing here than farther south; and while it is scrubby, seldom over six feet high, the trunks are very stout at the surface of the ground, but divide into branches a few inches above it. . . . About six miles from Benson the hills close in upon the river on the west side, and on the east lies a flat, bleak-looking, though in reality fertile expanse, forming a terrace. Below it the river runs in a cut with abrupt sides. This cut is 10 to 15 feet deep, and about 25 wide. This terrace is nearly three miles wide, and here stands the Mormon settlement before mentioned, distant from Benson by rail eight miles, and nine by the road which I travelled. North of St. David I saw ill-defined traces of ruins with potsherds like those on the divide and at Tres Alamos. On the west side there are a few semicircular basins between the advancing gravel hills, and on the edge of some of these are springs, which suggest the possibility of the existence of ruins. On the east side springs are scarce. Five miles south of St. David the hills close in upon the river on both sides, leaving only a bottom scarcely a mile wide. Before reaching this point, I saw a group of ten low mounds of white adobe, resembling those on the Gila and Rio Verde, only smaller. Potsherds like those at Tres Alamos were strewn over their surface, and flakes of flint and trap, but no obsidian."

Contention lies seventeen miles south of Benson by the road. Bleak levels spread out west of it to the foot of the wooded Sierra Huachuca. The aspect of the landscape is monotonous, though the plain is grassy. Half a mile south of the place, on a steep bluff east of the river, I found a ruin which has been much disturbed, and what of it is still distinguishable indicates small houses with rubble foundations, and enclosures also of rubble. I found very little pottery on the site, and not a single piece that was not plain, — nothing corrugated or indented.

During my stay at Contention I saw persons who had dug in those ruins, as well as in others situated higher up the San Pedro, one of whom showed me drawings of objects which the excavations had yielded. Among them was a frog carved out of some green stone called "jade" by the finder, a stone axe of the same material, and painted and corrugated potsherds. I have no reason to doubt the genuineness of these finds, although I did not see the originals. I was also informed that Charleston was in all likelihood the most southerly point to which ruins extended along the San Pedro in Arizona, and that there were traces of antiquities near Tombstone. My objective point being, however, the Huachuca mountain chain, I did not investigate personally the places indicated to me as bearing ancient remains.

From Contention to Fort Huachuca the ground slowly rises, and the Arroyo de Babocomari must be crossed about nine miles from the former place. Thence the direction is southwest to the foot of the chain, the upper slopes of which are pine-clad, while the cañones bear two varieties of oak. I could not find any trace of antiquities in the narrow gorges that cleave the sierra, but on its northern base, around Fort Wallen, and on the Babocomari, traces of ruins are visible. While mounds almost obliterated, foundations of small houses, and large enclosures formed by stones set on edge, may be distinguished, no clear conception can be obtained of the general plan and purpose of the structures. The artificial objects differ from those found along the San Pedro only in respect of the pottery, among which I found the ancient white and black, and red and black varieties, so abundant in more northern ruins. Since leaving Upper Salt River, I had not seen any specimens of these. The metates, instead of being made of lava, are of granite and quartzite, and the crushing pins are of greenstone. The metates show no particular skill in their manufacture, but are merely boulders worn out into a dish-like basin with a rim on three sides. Judging from the amount of pottery strewn about, one of the ancient villages, at least, must have been quite extensive; still the houses were not more than one story high. I infer that the valley of the Babocomari Creek was inhabited in places by sedentary tribes about whom we have no documentary information. The interior of the Huachuca chain was uninhabited, and the same seems to have been the case with the Sierra Mariquita, if I am correctly informed.

Along the upper course of the San Pedro stream as far as the Mexican frontier, beyond Palominas, or Ochoaville, I heard only of a few inconsiderable ruins, provided the reports are reliable. Crossing into Mexico at the Custom-house Station, I found myself on the grassy plateau through which the branches of the San Pedro meander towards their junction near that group of buildings. One of these branches descends from between the Huachuca and Cananéa chains, and the other takes its rise in the Cananéa proper.

The plain along the foot of the Cananéa is regarded as the highest plateau of Sonora. Judging from the altitude of Fort Huachuca, I estimate its elevation above sea level at five thousand feet. The Cananéa Mountains bound it on the west, the Sierra de San José (an isolated pyramid of striking appearance) in the southwest, the Sierra de los Ajos in the east, and in the south rise the first spurs of the Manzanal, a range skirting the upper course of the Sonora River. Along the southern edge of the plateau I found faint traces of ruins on the brink of a dry arroyo, now reduced to low mounds; and in another place I noticed still fainter vestiges, but I looked in vain for potsherds. In the heart of the Cananéa I saw no traces, nor could I learn of any. That chain is pine-clad, and its gorges are extremely narrow. Beyond it lies Terrenate, where more important remains are said to exist. I was told that in that vicinity there were fortified hills (Cerros de Trincheras), those places of refuge peculiar to Sonora and to the Sierra Madre of Chihuahua, of which I shall have occasion to speak hereafter. The pottery from that locality was described to me as being of the painted kind, but I saw none of it.

On the whole, the upper course of the San Pedro River and the region of its sources corresponds well to the "first desert," or uninhabited expanse, which, after leaving the Sonora River valley, Fray Marcos of Nizza had to traverse in order to reach the line of villages which the Sobaypuris occupied.[1] It is poorly adapted to the wants of land-tilling aborigines. The stream itself flows through a narrow channel, out of which it is difficult to draw its waters by means of acequias. Woods are distant, and the traces of occupation anterior to the sixteenth century are few and far between. They become more abundant farther south, along the course of the Rio Sonora. Rugged mountains enclose that river on both sides, west of which, in the direction of the arid and waterless coast, as well as in the east, about Fronteras, there are said to be remains.

I turned my steps to the south, in order to follow the spread of the Opata tribe, which within historical times has been the most prominent stock in Northeastern and Central Sonora. In so doing, I felt sure of meeting with abundant remains, although I also felt that the separation of the historic from the prehistoric might present almost insuperable difficulties.

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[1] *Relacion*, p. 338. Compare besides on these points my monograph on "Fray Marcos of Nizza," in *Contributions to the History of the Southwestern Portion of the United States*, 1890.

XII.

THE VALLEY OF THE SONORA RIVER TO BABIÁCORA AND THE VALLEY OF OPOSURA.

THE Sonora River flows in the main from north to south, and divides the northern half of the State of the same name into two sections, nearly equal in size. Beyond the rugged mountain chains which line the river on both sides, other ranges, equally rugged and quite as arid, run parallel with them. The average direction of the chains east of the Rio Sonora is from north-northwest to south-southeast, and they appear to be but ramifications of the Sierra Madre, towards which they ultimately converge. The chains west of the Sonora valley are less elevated and more irregularly distributed. There is a gradual flattening of the country towards the coast of the Gulf of California. The coast is mostly a sandy stretch of varying width, poorly provided with water, and therefore scarcely inhabitable. Before the coming of the Spaniards, and up to the present time, only the nomadic Seris claimed the northern part of this coast as their range, not living upon it, but traversing it on their fishing, hunting, trading, and marauding expeditions. Between the "Playas," as the coast is usually called, and the valley of the Rio Sonora a single stream of any consequence, the Rio del Altar, reaches the waters of the gulf. There exist ruins between that river and the Sonora, but I could not visit them. I only mention here the fortified hill near Magdalena, concerning which exaggerated reports have been circulated. It is one of the many "hills with bulwarks" (cerros de trincheras), two typical specimens of which I shall describe in this chapter.

East of the Sonora valley ruins are known to exist near Fronteras. The majority of the narrow defiles in Northeastern Sonora are destitute of perennial water as far as the vicinity of the Yaqui River. The Sonora valley, while by far the best portion of the northern half of the State, is by no means a continuously fertile region, as narrow gorges of considerable length separate the cultivable portions. Thus between Los Fresnos and Bacuachi nearly twenty miles of a rugged defile have to be traversed before the country opens out again at Mututicachi. There is also a very narrow gorge between Bácuachi and Chinapa, and the road from the latter place to Arispe traverses more than one pass, where there is scarcely room for it by the side of the river. The long and picturesque cajon between Arispe and Sinoquipe is uninhabitable except in a few places. Thus the Sonora valley is a succession of smaller vales, separated by passes and cañons. To give an idea of the narrowness of the defiles it suffices to state that from the Ojo de Agua del Valle, where the Sonora rises, to Babiácora, in a distance of about one hundred and twenty miles,[1] the traveller has to cross and recross the stream more than a hundred times.

The Ojo de Agua del Valle lies in latitude 31° and Babiácora, where I left the valley of the Sonora to turn towards the east, in latitude 29°.40. Vegetation, therefore, is more vigorous than in Southern Arizona, and the more so since the altitude decreases to about two thousand feet. Nevertheless, the general aspect is similar, for the same leading forms predominate; only the thickets are denser, and the zahuaro is supplanted by the pitahaya. Beside the palo verde, the palo blanco grows on gravelly hills; wild fig trees appear occasionally, and at Arispe a solitary palm tree indicates the proximity of the tropics. On the level of Bácuachi, on the lonely and difficult trail from Babiácora to Oposura, fan palms rise beside knotty and stunted oaks. The orange is cultivated at Las Delicias, and cotton grows nearly everywhere. It seldom, if ever, snows in the Sonora valley, and several crops may be raised annually. The mountains, where not too rugged and steep, are overgrown on their upper slopes with oaks and pines. The following points may be considered characteristic of the type of landscape: the Ojo de Agua del Valle, the view of Bácuachi from the north, the gorges between Arispe and Sinoquipe, and the valley of Banamichi.

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[1] The distance in a straight line is only about eighty-five miles.

From the grassy level between the Cananéa chain and the head-waters of the Sonora, an abrupt descent into a bleak basin leads to the Ojo de Agua. Barren heights enclose the denuded spot, vegetation is scant, and even the cactuses are stunted. Thence the river enters a narrow valley with side branches. The latter are treeless, but the principal valley is overgrown with willows, cottonwoods, elders, and canebrakes. So dense are the thickets that they sometimes impede travel. This extends for several miles, then the valley becomes a cajon with few tillable spots, where tall cottonwoods rise along the banks of the stream.

The aspect of the village of Bácuachi is not striking. Standing on a high bluff, its adobe buildings offer nothing attractive. The terraces above the river are quite bleak, the soil is reddish, and jungles spread over it. But the eye is fascinated by the aspect of the Sierra de Bácuachi in the east; a profile with bold indentations, though not craggy, and pineclad slopes, contrast singularly with the monotony of the valley. Few mountain chains of moderate height dominate their surroundings in such an imposing manner.[1]

The basin of Arispe looks dreary, with the leaden hue and dismal ruggedness that often characterize mining localities. The town shows a dreary decay, due in part to the ravages of the Apaches, in part to the removal of the capital of Sonora from Arispe to Ures.[2] The Sierra de Arispe is well represented in Mr. Bartlett's excellent "Personal Narrative."[3] In the southern extremity of the town stands the solitary palm tree before spoken of. Thence to the south the valley changes to a magnificent gorge, so narrow in many places that for several hundred yards it is necessary to travel in the river bed. Towering rocks, displaying strata of brilliant hues, rise on both sides. The crests assume strongly indented outlines. Along the perpendicular walls we notice with astonishment the columnar pitahaya, rooted in tiny crevices, with its stalks rising many feet. Alongside of them the wild fig tree expands its foliage like a trellis over the smoothest cliffs. A few recesses, enclosing arable ground, break the wildness of the scenery, of which Tetuachi is the most considerable. At Sinoquipe the country begins to open, and afterwards, though narrower in places, it presents a milder aspect.

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[1] I have been unable to learn their height, but I think that the Sierra de Bácuachi rises to about eight or nine thousand feet.

[2] Charles P. Stone (*Notes on the State of Sonora*, 1861, p. 9) says that Ures became the capital in 1838. According to the same authority, Arispe in 1822 had 2,000 souls, in 1861 only 600. José Francisco Velasco (*Noticias estadísticas del Estado de Sonora*, p. 286) gives to Arispe 2,079 inhabitants in 1822, thirty-nine years later only a thousand. J. R. Bartlett (*Personal Narrative*, vol. i. p. 282) says that the removal of the capital from Arispe to Ures took place in 1832. When he visited Arispe in 1851, the town, although sadly dilapidated, still showed to greater advantage than in 1884. Of the church he says: "The only building of particular interest is the church, which was once a fine edifice, but is now fast falling to decay. Its interior is of unpleasing proportions, its length, as in most churches of the frontier where large timber cannot be procured, being too great for its breadth. It contains some fine pictures among the hundred or more that are suspended from its walls. They are all in beautifully carved frames, richly gilt, but both pictures and frames are suffering from neglect. The altar is covered with massive plates of embossed silver, and there is a profusion of this metal displayed in the shape of massive flower vases, chandeliers, censers, etc." Since that time the church has been completely rifled of its treasures, and it presents a desolate appearance, with its altars stripped of every ornament, and with its naked walls.

According to the *Catálogo de los Partidos contenidos en los Rectorados de las Misiones de Sonora por el año de* 1658 [should be 1685], (in Documentos, 3d series, p. 793) the church books of Arispe began in 1648. In 1678, according to the *Relacion de las Missiones que la Compañia de Jesús tiene en el reino y provincia de la Nueva Vizcaya en la Nueva España*, by Father Juan Ortiz Zapata, S. J., (p. 379.) Arispe contained then 416 Indian inhabitants. It was an Opata pueblo.

In the document entitled *Estado de la Provincia de Sonora*, 1730, (Documentos, 3d series, p. 617), we read: "Mision de Arispe se compone de tres pueblos: el principal y cabecera es Nuestra Señora de la Asuncion de Arispe. Tiene ciento ocho familias y mas de cien muchachos y muchachas de doctrina."

[3] Volume I. page 281.

The valley at Banamichi and south of it is made up of strange contrasts. On the east side of the river gravelly bluffs approach the banks covered with dense thickets of thorny plants. The dangerous choyas (*Cylindropuntiæ*) grow in profusion, and the palo blanco forms groves intermingled with mezquite, pitahaya, and palo verde. In front of the eastern chain of mountains the Cerro de Santa Elena rises boldly, together with other abrupt eminences, like outposts of a grander background. On the west side expands a lovely valley teeming with signs of cultivation, beyond which the Sierra de Opodepe terminates the view. In that valley fig and orange trees ripen their fruit; the winters are mild, snow falls only on the mountain tops, and rains are fairly abundant during the proper seasons. But while the Banamichi valley is the broadest and finest of all along the Sonora River, it is in reality of limited extent. Although there is abundant room for a number of small Indian villages, the tillable areas are not extensive. It need not surprise us, therefore, that, although aboriginal ruins are numerous along the Sonora River, the settlements were of limited extent. The river bottom is not fit for permanent habitation, and even the present villages stand upon terraces so cut up by gulches that only room for small pueblos is found on their surface.

The character of the ruins along the Sonora River as far as Babiácora may be summed up in a general picture. From ten to fifty small houses, with a substructure of rubble, irregularly scattered, and enclosures, also of rubble but not connected together, formed a village. Of what material the superstructure, the walls, and the roof were made, can only be surmised. From descriptions I judge that the walls were usually made of poles and yucca leaves daubed over with mud, and the gable roofs of yucca or fan-palm leaves supported by rafters.

Another class of ruins shows low mounds. Such a cluster exists in the immediate vicinity of Banamichi, and is figured on Plate I. Figure 77. It is difficult to determine whether the mounds were houses or not. They are composed mostly of gravel, and seem unfit for walls of any height. Similar structures I met at Vaynorpa, on the east side of the Sonora River, below Las Delicias.

I refer to Plate I., Figures 70 to 77 inclusive, for sketches of ruins in the Sonora valley. The most characteristic of the eleven groups which I surveyed lies north of Banamichi, on a denuded plateau or terrace called Mesita de la Cruz, east of the river and above a declivity covered by dense vegetation. The buildings are distinguished from the enclosures by double foundation walls as well as by a slightly larger accumulation of rubbish.

Comparing ancient architecture in the Sonora valley with that of more northern ruins, it presents at first glance much more modest proportions, and much greater fragility. None of the villages seen by me could have sheltered more than a few hundred people. I was at a loss to find traces of solid adobe buildings. Still the durable foundations indicate that the apparent insufficiency of the superstructure had nothing to do with permanence of abode. The soil offered little inducement for the manufacture of sun-dried brick, in comparison with the facility with which impermeable shelters could be constructed by means of vegetable substances. Palm leaves form an excellent roof, and ocotilla poles plastered with mud make a very solid wall. Owing to the heat of the climate, distribution of the respective households into separate dwellings was natural.

What appears striking is the lack of defensive structures around these hamlets, although their situation is generally such as to afford a free lookout, and is difficult of access in many instances. Moreover, we must remember that the nomadic Indians began their incursions into Sonora on a larger scale only at the close of the seventeenth century. The Seris, it is true, occasionally troubled the Opatas, but it is doubtful if they ever penetrated as far as the Rio Sonora. Only war between sedentary tribes could permanently disturb the peace of these settlements. Of such wars there are some evidences previous to the coming of the Spaniards.[1] But the Opatas provided against such a danger in another way, which I shall describe hereafter.

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[1] Ribas, who calls the Seris "Heris," does not mention any incursions by the latter into the interior of Sonora. *Historia de los Trivmphos*, p. 358: "Sustentanse de caça; aunque al tiempo de consecha de maiz, con cueros de venados y sal que recogen de la mar van á rescatarlo á otras naciones. Los mas Cercanos destos á la mar tambien se sustentan de pescado." Fray Marcos de Nizza (*Descubrimiento de las Siete Ciudades*, p. 331) speaks of the Seris who came to visit him at Matape without any fear of the Eudeves who lived in that village. In the course of the past century the Seris became more dangerous. *Informe del Padre Lizasoin, sobre las Provincias de Sonora y Nueva Viscaya* (Documentos, 3d series, p. 693). In regard to wars between sedentary tribes, see Ribas, *Historia*.

The pottery found at the ruins consists mostly of a kind rather coarse and thick, yellowish or reddish. There are also gray potsherds and a few painted and indented ones; but the latter are scarce. In some localities I noticed none but the coarser varieties, which had the peculiarity of being striated by irregular incisions on the outer surface. These incisions are clearly artificial, and made without any pretence to symmetry, so that their object must have been practical, and not decorative. Inquiring of various Opata Indians living in localities distant from one another, and between whom, therefore, collusion was hardly possible, I learned that the incisions were made for the purpose of facilitating evaporation, so that the fragments thus incised would be those of jars in which drinking water was not merely preserved, but also cooled, by making them artificially porous. I give this explanation with the usual reserve, although it strikes me as quite plausible.

The metates and stone axes exhibit no advance over those of Southern Arizona, and are of the same type. Flint arrowheads I nowhere found, and this is explained by the fact that the Opata Indians used, instead of tips of stone or flint, wooden points hardened by fire. Of other implements, mortars excepted, I saw nothing.

I was everywhere emphatically assured that all the remains along the Sonora stream were those of Opata villages. In regard to some of them, as, for instance, Mututicachi,[1] Jitisorichi,[2]

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[1] *Descripcion Geográfica de Sonora*, p. 588: "Otro pueblo desamparado está entre Bacoatzi y Terrenate, que se llama Motuticachi, que fué de pimas altos, y se despobló cuando se erigió la Mision de Santa Maria Soanca el año de 1730, adonde y Cocospera se agregaron dichos naturales por la mucha guerra que en dicho paraje les daban los Apaches."

[2] When Don Pedro de Rivera made his journey of inspection of the frontier garrisons of New Spain, he passed from Bácuachi to Arispe in October, 1726, and found no village between the two places, although he must certainly have passed at the foot of the Mesa of Jitisorichi. *Diario y Derrotero*, p. 37. This

Motepori,[1] and Huépaca,[2] there is not merely tradition connected, but also documentary information. Castañeda gives several names of pueblos met with on his passage with Coronado's troop in 1540 and 1542. He says: "Sonora is the name of a river and of a valley, of which the inhabitants are numerous and intelligent. The women wear under skirts of tanned deer-hide, and small 'san benitos' down to the waist. Every morning the caciques of the village go to the top of little eminences of earth built for the purpose, and for more than half an hour call out like public criers, notifying every one what he is to do. Their temples are little houses around which they plant a quantity of arrows when they look for war. Behind this province, towards the mountains, are built a large number of villages, comprising a number of tribes united in nations of seven or eight, ten or twelve villages. They are Upatrico, Mochila, Guagarispa, El Vallecillo, and others near the mountains which we have not seen."[3]

Previously he states that all the houses of the aborigines, from Sinaloa to the entrance of the "desert of Cibola," were built of mats of reeds.[4] From the highly valuable work of Ribas, published a century after Coronado's expedition, and written by one who had a good opportunity of seeing the Opatas in their primitive condition, we learn that their dwellings were "more durable and in better condition" than those of other Sonoran tribes.[5] It is possible that Father Ribas based his comparison upon the abodes of the Yaquis and Mayos, which were mere huts made of reeds and canes, and

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confirms the local tradition that the site had been abandoned previous to the eighteenth, and even to the seventeenth century.

[1] Motepori was occupied in 1726. Rivera, *Diario*, p. 38. It was a mine, still worked in 1764. *Descripcion Geográfica*, p. 608.

[2] The information in regard to the old pueblo of Huépaca is only traditional.

[3] *Cibola*, p. 157.

[4] Ibid., p. 156.

[5] *Historia de los Trivmphos*, p. 392: "Sus casas mas durables y conpuestas."

without the foundations of stone peculiar to the houses of the Opata Indians.[1]

The indications concerning the mode of life and organization of the ancient inhabitants of the Sonora valley furnished by the ruins point to an agricultural stock, living in small communities. The ruins appear to be numerous, and are in clusters rather than in a line. This results from the broken character of the country, and it brought about the formation of local confederacies or leagues. It is not surprising, therefore, to learn that between cluster and cluster dissensions were wont to break out, which sometimes culminated in actual hostilities.

Thus I was informed that the Opatas of Sinoquipe and Banámichi had formerly confederated against their southern neighbors of Huépaca and Aconchi; that the Opatas of Oposura made war upon those of Banamichi and Huépaca; and that the people of Opodepe were hostile to those on the Sonora River, etc.[2] One of the consequences of these disturbances was the erection of defensive works, not around but outside of the villages, — places of refuge to which the whole population of several allied settlements could resort in case of danger. The existence of these places, which manifestly were fitted only for temporary occupation, seems to indicate that the warfare which the Indians of that part of Sonora carried on was not the persistent harassing peculiar to northern nomads, but attacks in larger bodies, of the approach of which those who were threatened could be forewarned.

The "cerro de trincheras," or fortified hill of Bato-na-pa, is situated a short distance south of the village of Banamichi.

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[1] *Historia de los Triumphos*, pp. 5, 6.

[2] This information was obtained from Opata Indians of Banámichi, Sinoquipe, and Aconchi; how far it can be absolutely relied upon I do not know, yet I see no reason for doubting its truthfulness in the main.

The eminence forms a promontory of considerable extent, the western portion of which is rather densely overgrown with thorny shrubs. Towards the east, vegetation consists of trees, and the palo blanco predominates. The parapets mostly extend along the southern brink of the mesa, and they consist of low and rude walls of volcanic rocks piled up, and not of regular masonry. Their height varies, much of it having been destroyed. The highest point of the mesa is occupied by an enclosure in the shape of a lozenge, the walls of which are about one meter (3 feet) high, and as thick in places as 1.5 meters (5 feet). They are of dry work, consisting of boulders of the size of a man's head, and larger, piled up with considerable neatness, but without any mortar or mud. The enclosure measures about 25 by 21 meters (82 by 70 feet). The fortifications form something like a spiral, following the sinuosities of the ground. On the western slope there are no fortifications, which implies that danger had been expected only from the south and east. The parapets are so low at present that only by lying down behind them can any protection be secured. The whole is exceedingly primitive, and shows no skill beyond that of improving natural lines of defence.

I could not discover any traces of dwellings on the mesa of Batonapa; there is comparatively little pottery, and only a few crushers and an occasional fragment of a metate. All seems to indicate that the place was used only as a temporary retreat by the people of the neighboring villages, now in ruins.

Against an Indian foe the parapets would have been of good service, although their length required quite a number of men to occupy them successfully. The really important part of the stronghold is its highest point, where the rise and contours induced the builders to construct a double line of bulwarks, with angles and salients, so that the outer parapets could be commanded from the inner. On the whole, the Cerro de Batonapa resembles the fortified hill of Jio near Mitla, in Oaxaca; and even the Sacsahuaman above Cuzco, in Peru, though on a much smaller and more primitive scale.

The total height of the mesa of Batonapa above the valley is about 60 meters (185 feet), and the first or lowest parapets begin at an elevation of 50 meters (164 feet). To the north of the mesa are hot springs, from which the place has its name, signifying, in the Opata language, "Where the water bubbles."

There is a similar fortified hill near Huépaca, which tradition says was used by the people of the village and of Aconchi against their northern neighbors.

East of Banamichi rises the steep Cerro de Santa Elena, the ascent to which is only possible from the north, east, and south; on the west the acclivity is vertical. Rude parapets similar to those of Batonapa defend the southern and eastern sides, in addition to the great steepness of the slope. They do not encircle the eminence, but run only a short distance, forming not less than six lines, one higher than another, at varying distances. Near the summit is a circular enclosure of stone about 16 meters (53 feet) in diameter and of inconsiderable height. The summit affords an extensive view.

I did not penetrate farther along the Sonora River than Babiácora, or a hundred and ten miles in a direct line south of the Arizona frontier. Beyond that point begins the long and wild Cajon of Ures. There must be ancient vestiges in the vicinity of Babiácora, since it was formely inhabited by Pimas.[1] South of it begins the ancient range of the Eudeves, a branch of the Opatas.[2] Instead of going in that direction,

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[1] Zapata, *Relacion de las Misiones*, p. 352: "La lengua de la gente es pima."

[2] Ibid., p. 354: "La lengua en lo general es ova, la cual solo hablan ellos entre si, pero con los demas aun usan la lengua Egue." *Descripcion Geográfica*,

I determined to follow the trails leading eastward in order to reach, if possible, the Sierra Madre, where I was told that numerous ruins of ancient settlements might be found. The popular impression was that the head-waters of the Yaqui, and especially those of the Rio de Aros, are rich in vestiges of antiquity; but I was also warned that it would be very difficult, if not impossible, to penetrate into the wilderness, owing to the prevailing state of insecurity. While it was believed that General Crook had been successful in removing the Chiricahuas from the central mountain chain, it was thought that straggling Apaches still infested the country; and there were traces of their occasional presence between Babiácora and Oposura, the nearest settlement in the east. Between these two points, at least thirty-five miles of uninhabited country intervene, so rugged and mountainous that the distance is considerably increased, and the scarcity of water and the steepness of the slopes render transit most tedious and difficult.

On this whole stretch I saw no remains of Indian buildings; a Spanish hacienda stands at Bácuachi, but it is in ruins at present, as the Apaches compelled its abandonment. It is along the Sonora valley and in the countries east of it that one learns what a terrible scourge the Apaches have been since the close of the seventeenth century. Only very few villages are not still half in ruins, and the trails are dotted with mementos of bloody tragedies. The inhabitants of Sonora were not as well armed as their savage invaders, and moreover constant revolutions engrossed the attention of the central and state governments to such a degree that very little military protection could be given to outlying districts. Thus abandoned to themselves, the sedentary Indians and

p. 569: "Los Indios de esta mision son Eudebes." Orozco y Berra, *Geografía de las Lenguas*, p. 344. According to the last author (p. 345), the "Ova" is the Jova, also a dialect of the Opata; the "Egue" is the Eudebe.

Spanish settlers fell an easy prey to a wily and relentless foe.[1] I cannot repeat here the many harrowing tales told me by eyewitnesses of ravages committed, and of murders and massacres perpetrated.

From Babiácora the Sierra de la Palma must first be ascended, a nearly waterless and steep mountain chain of great ruggedness. The trail winds to the top of the crest, and then gradually descends along dizzy slopes, partially wooded. The Mesa de los Morenos, a wide and barren volcanic plateau, is next traversed, after which the Llano de Bácuachi is reached, — a grassy plain where fan palms grow to a considerable height, notwithstanding which the nights are quite chilly. Beyond the ruined hacienda, we crossed the bleak Sierra de Bácuachi unmolested. The descent into the Oposura valley is long and steep. Friable volcanic tufa forms the slopes, and on the picturesque perpendicular walls of chasms that open on every side wild fig trees, pitahayas, and other sub-tropical plants have sunk their roots, covering the cliffs with a network of green tapestry. The climate of the Oposura valley is warmer than that of the Sonora valley, but the vegetation is scrubby, and there is no beauty about the thorny jungles that skirt the river and obstruct travel. Beneath some of these thickets the remains of small villages can be traced. On Plate I. Figure 78, I have given the plan of the most considerable of these. The ruins are in all particulars like those of the Sonora valley, and I therefore refer to what I have said about the latter. The manufactured objects, including pottery, are also similar. North of Oposura are the mining regions of Cumpas and Nacosari, occupied in the seventeenth century by tribes of the Opata stock.[1] I did not visit them, but obtained from a resident of Oposura a description of a house of the Opatas in that vicinity, the roof of which was supported by wooden posts placed outside of the walls, which were of stone laid in adobe. With the exception of a building which I saw in one of the eastern ramifications of the Sierra Madre, of which I shall hereafter speak, this is the only specimen of Opata architecture which I have heard of as being still somewhat intact. East of Oposura a series of ranges, running parallel with those which I have mentioned as skirting the Sonora River, extends from south of Fronteras towards the junction of the Oposura River with the Yaqui, at or near Tepachi. They are the Sierra Púrica, the Cerro de Nacosari, and the Sierra Grande de Oposura, all wild and rugged chains, with very little water. The western approaches to the Sierra Madre are, in these latitudes, of great ruggedness.

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[1] I will only refer to the reply given in 1850, by the authorities of the village of Bácuachi, and incorporated in the *Noticias Históricas* of J. Lucas Biso (Boletin de la Sociedad Mexicana de Geografía y Estadística, vol. ii., n. 13, p. 71): "La decadencia comenzó desde la misma época de dicho alzamiento [1830], por lo insignificicante que han estado las tropas presidiales hasta el dia, asi como la variacion de la capital, como igualmente las revoluciones que ha habido en el estado." That the Apaches were better armed than the settlers was already a subject of complaint in the eighteenth century.

The town of Oposura, or, as it is now called, Moctezuma, has suffered much from the Apaches, as well as from the political disturbances which have afflicted Sonora since the days of Mexican independence. Its buildings are not in as dilapidated a condition as those of Arispe, still they show traces of neglect, characteristic of the disheartening influence which constant insecurity exercises upon the human mind. This was for more than one hundred and fifty years the condition of the population of the northern States of Mexico. In daily peril of their lives from hostile savages, and separated from the outer world by deserts, a cloud of hopelessness has finally settled upon the inhabitants which it will take generations to remove. So long as hostile Indians might at any moment deprive them of life and property, or some Pronunciamiento call them to arms for a cause of which they had not even a conception, there was slight incentive for them to display energy.

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[1] Ribas, *Historia*, pp. 358, 359.

There is little to say in regard to the antiquities of this otherwise interesting region. The architecture of the natives who occupied these portions of Sonora bore such a modest character, and there is such uniformity among the ruins, that it becomes superfluous to refer to all of them in detail.

Crossing in succession the Sierra de Oposura and its eastern ramifications, the Sierra de las Bolas and the Cenizero, and finally the Sierra de Huassavas, to Granados, on the Yaqui River, I found myself surrounded by scenes of nature more rugged, but displaying greater exuberance in vegetation, than those sections of the Sonora valley which I have just described; but I also found there ancient vestiges of the same people.

In speaking of the ruin and decay which have befallen the settlements in Sonora, I have not mentioned another factor that has contributed towards it, the suppression of the order of the Jesuits. It cannot be denied that this order had, from the beginning of the seventeenth century until the second half of the eighteenth, performed great things in Sonora. They had raised the standard, both mental and moral, of the native inhabitants to a much higher level, and had correspondingly improved their material condition. The northern and central parts of Sonora had become dotted with Indian villages which possessed elements of a modest prosperity. With very limited means the Jesuits had resisted the terrible pressure which the Apaches brought to bear upon the natives. In some parts of the Sierra Madre they had been compelled to abandon, as I shall show further on, several of their missions. But in the main they held their own, and were a mental as well as a material support to the sedentary Indians. The suppression of their order deprived the Christianized natives of this support, and utterly discouraged them. I do not pretend to judge the opportunity or justice of the measure that abolished the "Company of Jesus" for a time. But it is certain that it was a severe blow to Sonora and the northern regions of Mexico in general.

The number of Jesuit missions at one time in Sonora was considerable. Their ruins are not distinguishable from those of prehistoric settlements, except so far as tradition and documentary evidence apply to them. It is, therefore, as I have stated in the preceding chapter, not easy to separate the historic from the prehistoric. I was generally unsuccessful in doing it along the Sonora River, for traditionary information, as well as documentary evidence, is scant and confused. Along the Yaqui and in the Sierra Madre these impediments exist in a less degree, and the classification of the ruins into such as date from a time anterior to the Spanish occupation, and into villages still continuing to exist afterwards or founded since the sixteenth century, will therefore be a less difficult task.

XIII.

THE UPPER YAQUI RIVER AND THE NORTHERN SIERRA MADRE OF SONORA.

THE village of Granados is of recent date, having been founded by two families, the Durazos and Arivsus, in 1826; it has now about four hundred souls, notwithstanding the great hindrance which the Apaches have been to the colonists. Hardly half a mile of a sandy and gravelly beach separates Granados from the Yaqui, which is here a beautiful, broad stream, easily forded in ordinary seasons. On the east bank begins the ascent of the Sierra de Bacadéhuachi.

That mountain chain presents an imposing aspect, rising so close to the river that some of its reddish brown crags seem to overhang it. It forms a mass of vertical cliffs, gigantic pillars, and narrow clefts, with hardly any vegetation, and its height above the stream and the green wheat-fields on the west is at least four thousand, possibly five thousand feet. The Bacadéhuachi chain is about twelve miles wide, separated by a narrow valley from the Nacori chain, beyond which the Sierra Madre looms up in solemn and rugged grandeur.

On the west side of the Yaqui the Sierra de Huassavas hugs the valley quite closely. Dry and rather broad beds of torrents descend from it and spread out towards the river bottom. The ridges between these arroyos are overgrown with the usual thorny jungles; and only the highest parts of the sierra bear pine timber. In the Yaqui valley it is hot and humid; and at Huassavas, after so many months spent in arid regions, I was now in a country where the moisture of the atmosphere was perceptible even on a clear day. The feeling was by no means agreeable, yet to characterize the climate of Granados or Huassavas as "moist" would create an erroneous impression; it is only less arid than that of other parts of the Southwest.

The sources of the Yaqui are hardly known; from what I could ascertain, they lie nearly due east of the village of Nacori, beyond the bold Sierra de Que-va-uér-ichi, that rises abruptly above the Nacori valley. Chu-ui-chu-pa and Gavilan were indicated to me as the places where the largest river of the Mexican Pacific coast takes its rise. This would place it about in latitude 29½° and longitude 108½°, but subsequent investigations will, of course, modify these approximations. The Yaqui, under the name of Rio de Chuuichupa, flows first from south to north, and through extremely wild gorges, as far as the neighborhood of Huachinera, in latitude 30½°. There it makes a short curve to the west, and then again flows, under the title of Rio de Baserac, due north, to the village of Babispe, where it again changes both name and direction, — the former to Rio de Babispe, the latter to the west. Another turn of the river takes place a short distance west of Babispe, and thence on the Yaqui keeps a more or less southerly course, but changes its name frequently. North of Huassavas it is called Rio de Opoto, farther on Rio de Huassavas, still lower down Rio de Sahuaripa; its main confluent is the Rio de Aros. The name of Yaqui is applied to the great stream only below Sahuaripa. I am unacquainted with the country below Granados, as my investigations had to be confined to its upper course, and to such portions of the western Sierra Madre as were accessible at the time.

The region west of the principal chain of the Sierra Madre and east of the ranges of the Purica and Oposura is wild and rugged. The valleys are fewer in number than in an equal distance on the Sonora River, and the gorges through which the Yaqui flows are longer; but some of the valleys, like that in which stand the villages of Granados and Huassavas, and, farther north, the pueblos of Baserac and Babispe, are very fertile. In the seventeenth century the Jesuit missionaries found a fruitful field for their labors in this section of Sonora, for not only were there a number of small Opata pueblos in proximity to the river, but the interior valleys also had their hamlets, and far into the Sierra Madre extended the settlements of Opatas, Jovas, and Eudeves. The greatest portion of these villages were much smaller than those of to-day. When we read in the catalogue of the Jesuit missions of 1678 that Nacori had 450 inhabitants, Huassavas 632, Bacadéhuachi 360, Baserac 399, Huachinera 538, and Babispe 402,[1] — and in 1730, that the same places had respectively 281 and 150 souls, 150 families, 272 souls, 274 families, 100 families, and 180 families,[2] — these figures indicate the changes which the Jesuits had brought about in the distribution of the population. The missions along the Upper Yaqui and farther east began in 1645.[3] With the subsequent inroads of the Indians from the eastern flanks of the Sierra Madre and afterwards of the Apaches, several settlements were abandoned. These districts suffered from such depredations at an earlier date than the western parts of Sonora. The Janos, Sumas, and Jocomes, tribes living in the vicinity of Casas Grandes, were enemies of the sedentary tribes of Eastern Sonora before the appearance of the Spaniards.[4] Yet their

[1] Ortiz Zapata, *Relacion de las Misiones*, pp. 364, 366, 367.

[2] *Estado de la Provincia de Sonora*, 1730, pp. 622, 623, 624.

[3] *Catálogo de los Partidos*, pp. 793, 794.

[4] This was repeatedly told me by Opatas themselves, as will appear further on

inroads made no such lasting impression as those subsequently perpetrated by the Apaches. The villages in the Sierra Madre were, of course, most exposed to attack, and we need not be surprised therefore to see more and better provisions for defence in these mountains than along the Rio Sonora. A good specimen of a village protected by a wall of circumvallation is figured on Plate I. No. 79.

This village stands on the Mesa de San Antonio half a mile east of Granados. The eastern end of the mesa overlooks the valley, with sides steep and gravelly. The usual thorny shrubbery spreads over the surface of the mesa, and the rectangular buildings, of which only rubble foundations remain, are scattered at irregular intervals and at every possible angle in relation to one another. The buildings were quite large in comparison with those on the Sonora River, some of them measuring as much as 8 by 10 and 8 by 12 meters (26 by 32¾ and 39⅜ feet). I could not discover any trace of partitions, for the whole is very ruinous, and even the foundations are quite indistinct. In one place I found traces of a small enclosure. Few artificial objects are scattered about the premises, and the pottery fragments are like those on the Sonora River and at Oposura, — plain, coarse, and incised. The metates are of granite, but I found no stone axes, nor was there any flint or obsidian. The surface of the mesa shows no signs of having been tilled; yet it is possible that the people of the little pueblo may have raised corn on it in proximity to their houses, as precipitation is abundant during the rainy season. At the foot of the mesa, in the bed of the Arroyo de la Culebra, are rows of boulders, such as could be picked up in the bed of the torrent at every step, laid on the ground, but not set in it, in parallel rows, intersected by transverse ones at irregular angles, thus forming a series of more or less rectangular areas of varying widths and lengths. These groups of enclosed spaces are found on the lower end of the arroyo over a space of more than a mile. Higher up I noticed nothing, as the bed of the torrent is so completely covered with boulders as to be almost impassable except on the narrow trail.

These contrivances were new and strange to me. They were undoubtedly artificial, and it was plain that they could not have been foundations of houses or fortifications. They looked rather like rude dams, laid across the course of the arroyo. But for what purpose? The rocks lie loose on the ground, and might be carried away by torrents suddenly descending during a freshet or after a thunder-storm. Nevertheless, they could oppose considerable resistance, and prevent the spaces between them, to a certain extent, from being covered with drift. In fact, they were freer from boulders and gravel than the unenclosed expanses. I was told by Opatas that these lines of stones had been laid by their ancestors in order to keep a certain expanse of ground free from drift, and thus render it proper for cultivation. In other words, that the rows of boulders enclosed garden beds, protected in a measure from being covered with drift by the low dams. Although in appearance sandy, the soil becomes productive wherever irrigated, and the inhabitants of the Mesa de San Antonio had thus formed tillable patches within easy reach of their village.

The query arose, however, why this method had been adopted, which was much more laborious and uncertain in the end, instead of cultivating the fertile loam of the river bottom. Still, a portion of the fields may have been located in the bottom also, as the garden beds in the torrent are of only limited extent. But I was also informed that the bottom was covered with thickets and trees previous to its settlement in 1826, and it is well known that the stone axe was not adapted to clearing land. I accordingly conclude that these contrivances belong to the kind of agricultural expedients of which I have spoken in connection with the Gila, by means of which the waters of mountain torrents were made to serve for the irrigation of crops planted in their paths. As will be seen further on, such contrivances are very numerous in the Sierra Madre districts.

East of the Mesa de San Antonio, on a high, steep rock, plainly visible from Granados, belonging to the chain of the Cenizero, I was informed, there is a fortified village, rather, as appeared from the description, a "cerro de trincheras," like the fortified hill at Batonapa, and at Santa Elena near Banamichi.

North of the Arroyo de la Culebra and east of the town of Huassavas, which lies on the Yaqui three miles north of Granados, there are dams similar to those just described in nearly every one of the numberless narrow gulches which descend from the sierra and cut up the foot-hills into little nooks. Sometimes the dikes run across the beds of the torrents, as at the Culebra, or are laid transversely across terraces between two gulches. There is a dam in the Cañada de las Tinajitas, and there was a house near the dikes, which, in this case, are laid across a triangular terrace above the junction of two arroyos. There are four dams in the broad and quite level Cañada de Mochu-ba-bi, about three miles west-northwest of Huassavas, and there the number and extent of the dikes is greater than at the Culebra, but I failed to notice traces of dwellings. Pottery also is quite scarce, and only of the red incised kind. Probably the vessels broken were water urns, and the earthenware used on such patches was only brought thither for drinking-water for those who tilled the little fields, and there were no permanent abodes connected with them. I inquired diligently whether there are Indian villages of any description on the mesas about the Cañada of Mochubabi; but those best informed denied it emphatically, assuring me that the garden plots had been cultivated by Indians who resided nearer to the river. Ribas mentions in 1645 a tribe of "Buasdabas,"[1] but whether the old pueblo stood on the site of the present one is not positively stated, although I believe this to have been the case.[2] It was manifestly smaller than to-day, as the policy of the Jesuits consisted in uniting the smaller pueblos to a larger one, and thus congregating them around the church of a central mission as much as possible. The abandonment of the smaller villages is therefore not an evidence of depopulation in this instance, but rather of concentration for purposes of teaching and for greater security.

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[1] *Historia de los Trivmphos*, p. 358.

[2] *Descripcion Geográfica de Sonora*, p. 570. All I can gather from this work, which was probably written by Father John Nentwig, then missionary at Huassavas, is that the pueblo stood in 1764 on the same side of the river as to-day. The description of the trail from Oposura to Huassavas is very good, as well as that of the valley itself. Of the former he says: "Á Jonivavi, cinco leguas al Oriente, saldrémos á dormir para destroncar (como dicen en Sonora) la jornada de diez y siete leguas, y las doce de bien mala tierra; y pasar la del mayor riesgo de mañana antes que sea de dia, y con esto lograrémos escafarnos del sol que en todo tiempo es bien bravo en acercándose á medio dia. Mayor mente en las quebradubas y cañadas por donde baja el camino á Guasavas." Of the situation and of the valley he remarks: "Y pasando la vista por todos los rumbos, dirá alguno de la comitiva, en que hoya nos hemos venido á meter, que apenas se ve una cuarta de cielo?—Y es asi, que en Guasava no se vé la cuarta parte del cielo, á causa de su situacion en un valle que no tiene un cuarto de legua de ancho, á la orilla derecha del rio, que mas abajo se llama el Grande, entre dos sierras altas y asperas, que corren, como su valle y rio, Norte Sur." Already in 1678 the church of Huassavas is qualified by Ortiz Zapata (*Relacion de las Misiones*, p. 364) as "Una linda y muy capaz iglesia, con crucero muy bueno en madera; ricos ornamentos de golpe de plata labrada para los altares; una muy buena capilla de cantores con instrumentos; la cantidad de muchachos de la doctrina en numero, y con puntualidad acuden á ella; la casa de la vivienda del padre buena y cumplida, y los demas habitadores del pueblo la tienen de terrado." It seems that in 1764 a new church had been built, *Descripcion* (*ut supra*): "Despues de visitar la nueva iglesia, que se puede contar entre las mas decentes de Sonora, dedicada al Apóstol de las Indias San Francisco Javier." In 1730 the old church was still in use. *Estado de la Provincia de Sonora*, p. 622: "La iglesia de Guazaca es grande fábrica antigua y está bien alhajada como tambien la casa." At present the church is only an adobe pile of considerable extent, but it has been rifled.

Southwest of Huassavas and nearly due west of Granados, above a narrow and rocky gulch, there are Indian carvings, executed on a smooth rock at the height of about twelve meters above the bottom of the arroyo. They are uncouth, incised figures, possibly intended for human forms, and enclosed by a rude trapezoidal frame cut in bas-relief. This sculpture is called La Cara Pintada, (literally, the Painted Face,[1]) and while it is undoubtedly Indian, it is not known whether the work was done by sedentary natives or by nomads, although the presumption is in favor of the former. Inside of the frame containing the human figure there is also the outline, very crudely executed, of a snake, resembling somewhat the symbol for lightning of the New Mexican Pueblo Indians. No remains of houses or dikes are in the immediate neighborhood of the Cara Pintada; the spot is wild and rugged, and appropriate for symbolic sculptures of Indian origin.

To the north of Huassavas, for a distance of nearly thirty-five miles, extends a desert, a broken and deserted mountain country. It is the stretch between the two portions of the Yaqui River, of which the eastern flows from south to north, and the western, below the bend at San Raphael, in the opposite direction, forming thus a peninsula of scarcely eighteen miles in width, in latitude 30½°. This tongue is occupied, in its northern half, by a wild and arid mountain chain, the Sierra de Teras, while the southern is covered by ramifications of the Sierra de Huépari. Fifteen miles north of Huassavas lies the village of Opoto, which is also an old settlement of Opatas and an ancient mission, the baptismal records of which begin in 1645.[1] I did not visit Opoto, but, after glancing at the valleys of Bacadéhuachi and Nacori, and the western flanks of the Queuavérichi Mountains, turned to the north-northeast in order to reach Huachinera, and finally to cross over into Chihuahua.

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[1] The term "Pintado," in common parlance in the Southwest, signifies quite as often, when applied to pictographs, "carved" as "painted" "Cara pintada" may therefore be also translated "face carved out of the rock" I thought, however, I saw traces of red paint on the sculpture, but may have been mistaken.

The Sierra de Bacadéhuachi, as previously stated, is a range of great steepness and ruggedness, especially on its western declivity towards the Yaqui River opposite Granados. From its volcanic slopes, after two or three hours of tedious ascent, the river and the green wheat-fields on its banks appear as if they lay at the bottom of a deep chasm. We look at them through a gap flanked by enormous rocks, and everywhere gigantic pillars and lofty pinnacles rise to the sky. There is no permanent water and no vegetation, — nothing but naked walls and crags, steep inclines, and chasms.[2] From the crest the eye plunges eastward into the valley of Bacadéhuachi and over slopes less inclined, and therefore decked with the usual scrubby vegetation. Beyond that valley rises the Sierra de Nacori, and still beyond the pine-clad Sierra de los Parapetos, and a blue silhouette in the far east indicates the Sierra Madre. No ruins can be expected in the clefts and precipices by which the Bacadéhuachi Mountains are rent, rather than traversed.

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[1] *Catálogo de los Partidos*, p. 793: "Segundo nuestro Padre San Ignacio de Opotu; sus bautismos comenzaron año de 1645." In 1678 the pueblo had 424 inhabitants. Ortiz Zapata, *Relacion de las Misiones*, p. 365. The church was not as large as that of Huassavas. In 1730 Opoto had 448 inhabitants. *Estado de la Provincia de Sonora*, p. 622. In 1764, the *Descripcion* (p. 572) places Opoto at "diez leguas al norte sobre la orilla derecha del mismo rio."

[2] This ascent to the Bacadéhuachi Mountains is called in *Descripcion* (p. 576). "La famosa cuesta de Bacatehac, donde cerca de una docena de cruces nos piden sufragios, por otros tantos muertos por los Apaches."

The valley of Bacadéhuachi is quite narrow, with a streamlet running through it. The climate is warm, there is some fertile soil, and there are small clusters of ruins scattered over the jungle-covered hills. The pottery, etc., is of the usual kind. Plans of the remains which I measured on the Mesita Montosa and the Mesita de San Marcos are given in Plate I., Figures 81 and 82, near the dilapidated and sad-looking present village.[1] The ruins on the Mesita Montosa present enclosures, plainly marked, and a mound indicating a small building. I was told that there were other ruins of like aspect and size scattered along the valley, but no vestiges of ancient settlements of considerable extent. None of the dike-like contrivances already described were found in the Bacadéhuachi valley.

The Sierrita de Nacori is a low range, on the crest and slopes of which I did not notice or hear of any ruins, but the valley of Nacori is rich in remains. They are, as far as I could see, small clusters, or frequently only isolated houses, nearly always connected with artificial dams. I have given a plain of the ruins on the "Divisadero," east of Nacori, where the indistinct remains of a few small buildings stand on the top of the hill (Plate I. Figure 80). A system of dikes and a few houses is found at Vay-ua-va-vi in the same vicinity. These ruins lie in the foot-hills of the Queuavérichi chain, a mountain range which rises majestically over the Nacori valley and terminates in a high peak which descends abruptly to the south. To cross this chain from either side is said to be attended with great difficulties, which has proved an element of comparative security for the inhabitants of Nacori during their long troubles with the Apaches. In later years the people of the Yaqui River were in the habit of sending their live stock to the Nacori valley for safety.[1] The valley opens to the south; in the north also there is a gap, but it is of difficult passage on account of the broken nature of its volcanic rocks. North of Queuavérichi rises the Sierra de los Parapetos, on whose western declivity ruins are found, at a place about twenty-five miles northeast of Nacori. Several of the steep heights that rise in front of the mountains, like videttes, were said to be fortified, one of which I examined, the lofty Cerro de Tonibabi, south of east of Nacori. I found it a typical "cerro de trincheras," very similar to the one near Santa Elena near the Sonora River. The parapets, however, were higher, and composed of larger blocks of stone. Little pottery accompanied the lines of fortification. I saw no houses, but a number of circular places which might have served as lookouts. The view from the height is very extensive to the west, north, and south. In the east the high sierra completely obstructs it. At the foot are hot springs, from which the place derives its Opata name.

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[1] In 1884, Bacadéhuachi contained five hundred inhabitants. The place presented a sad appearance, being much dilapidated and neglected. The Apaches have committed fearful ravages during the past and present centuries. In some years the number of people killed in the parishes which now form the parish of Huassavas, and included Huassavas, Nacori, Opoto, Bacadéhuachi, Huachinera, Baserao, Babispe, and San Miguelito, an aggregate of 5,500 souls, reached as high as eighty to one hundred a year. The present church of Bacadéhuachi is a remarkable structure, but it dates from the closing years of the past century, when the Franciscans had charge of the former Jesuit missions. Remains of the old Jesuit church still exist, and I was informed (after it was too late) that it contained two stone idols of ancient make.

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[1] I was told that the ranges east of Nacori were impassable to cattle, and the only way by which the Apaches could drive them out was past one of the settlements lying east, south, or north of Nacori. The inhabitants of Oposura even sent their cattle to that valley, where they were safer than at a greater distance from the Sierra Madre. Nevertheless Nacori was hard pressed by the Apaches, and several times in imminent danger of being destroyed. The last attack was made on the 17th of July, 1883, and it came very near being successful. Nacori contains at present three hundred inhabitants. It is built in the form of a hollow square, and the houses are connected by a wall, so that it is in fact a fort, the entrance to which is by two heavy wooden gates. The church is a plain adobe structure. The houses of the hamlet are also of adobe, and not large. The fields are scattered along the arroyo, which is not always flowing. In fact, drought is a drawback to the otherwise fertile valley.

The view which one enjoys from the hills northeast of Nacori is historically interesting. But, while extensive, it is by no means beautiful. Hills and vales covered with a dusty vegetation stretch toward the south and southeast, and along the horizon rise hazy isolated mountains, with a shaggy profile. At one time the Jesuits had several missions in that now utterly deserted region. Within a radius of thirty miles southeast of Nacori lay the Indian villages of Tyopari, Servas, and Mochopa. The mission at Tyopari was founded in 1676,[1] while Servas became christianized about 1645.[2] Northeast of the latter place lie the abandoned silver mines of Huaynopa, about which weird tales are circulated in Sonora as well as in Chihuahua, and the search for which has cost so many lives.[1] Satechi is another abandoned village in that vicinity.[2] The Indians who inhabited these villages were, at Tyopari and Satechi, Jovas; at Mochopa and probably at Servas, Opatas.[3] Their abandonment was brought about by the incursions of the Apaches, except in the case of Servas, which the Sumas and Jocomes destroyed in 1690.[4] The other three were still occupied in 1764, and given up between that year and the end of the past century.[5] In examining the

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[1] It is also written "Teopari," according to the *Catálogo*, p. 791. The baptismal records of the mission begin in 1676. "Sus bautismos comenzaron año de 1676." In the previous year it was visited, from the Chihuahua side, by Father Tomar de Guadalajara, S. J. Father Ortiz Zapata says, in the *Relacion de las Misiones*, p. 342: "Salió dicho padre al pueblo de San José de Teopari de Ovas cristianos pertenecientes al pueblo de Saguaripa que está quince leguas distante hácia el Oriente de la cabecera dentro de la sierra y habiendole vesitado dice en su carta de Teopari á tres leguas está el rio que es el de Papigochic y ya cerca de Saguarpia coje el nombre de Iaqui y otras tres leguas ó cuatro rio arriba está una hacienda llamada Oparrapa; . . . de Oparrapa á dos leguas está la rancheria de Natora que es de mucha gente." He mentions other villages and rancherías, thus showing that some portions of the interior of the Sierra Madre were still fairly settled in the seventeenth century. In addition to those villages, it is stated, in 1764, that many Jovas lived in scattered houses, or possibly even in caves. I suspect that the following passage in the *Descripcion Geográfica* (p. 552) may apply to the latter sort of abodes: "Mas zapios y agrestes son los Jovas especialmente casi la mayor porcion de su casta que no quiere reducirse á vivir en pueblos, fuera de los que están en Ponida, Teopari y Mochopa; sino tiran a vivir en las barrancas de la sierra donde nacieron; . . . los de la rancheria de Satechi y los de las márgenes del rio de los Mulatos y del de Aros, que moran entre breñas y malezas, manteniendose con raices, yerbas y frutas silvestres, consistidendo sus siembras solo en tal cual mata de maiz y algunas calabazas y sandias donde los consienten las angosturas, en que dichos rios rompen por aquella sierra." In 1730, Tyopari contained seventy-eight families, and had a church; and in its neighborhood was the mission annex of Santa Maria de los Dolores, with forty-five families.

[2] *Catálogo*, p. 794, calls it "Sereva"; the *Relacion de las Misiones*, p. 366, "Sereba." That report gives the distance from Bacadéhuachi at "siete leguas

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de distancia al sur tiene el pueblo llamado Santo Tomas de Sereba, adonde se redujó un pueblo antiguo llamado Setasura." Population in 1678, 272 souls. Servas and Setasura are thus proved to have been not contemporaneously inhabited, but successive settlements of the same tribe.

[1] The mines of Huaynopa have been so frequently sought for that it may not be amiss to give here the location according to *Descripcion*, p. 577. Speaking of Satechi it says: "No confina esta mision con poblacion de Españoles, sino la despoblada de Guainofa, como doce leguas adelante de Satechi al nordeste en la sierra, la que tenía muy ricas minas de plata." The mines of Huaynopa must therefore have been abandoned before 1764.

[2] Satechi appears to have been a mere hamlet. *Descripcion Geográfica*, p. 576: "Y doce leguas al oeste sudoeste [from Nacori], hay una rancheria de Jovas que pertenecen á esta administracion llamada Satechi, de cuya nacion andan muchos por la serrania, sin reconocer pueblo ni padre misionero por suyo."

[3] Ortiz Zapata, *Relacion*, p. 348. *Descripcion*, pp. 568, 576. *Estado de la Provincia de Sonora*, p. 621.

[4] *Descripcion*, p. 585: "El pueblo de Santo Tomás de Servas de nacion opata está despoblado desde 1690 por haberlo asolado y destruido enemigos, que es creible serían Jocomis y Sumas." Of the others it is stated in the same place: "El pueblo de Natorase despobló el año de 1748, por órden del Exmo Sr. Virey conde de Revilla Gigedo, á causa de ser inadministrable desde Teopari su cabecera, por las muchas cuestas, malos pasos, larga distancia de leguas, cuyos naturales, de nacion Jovas se poblaron á media legua de Arivechi, constituyen hoy el pueblo de Ponida, en donde son administrados y el pueblo de Teopari y la rancheria de Chamada (esta rancheria ya se mudó al pueblo llamado Santo Tomás) quedaron desde entonces agregados á la mision de Saguaripa, habiendose despoblado el propio año San Matéo por invasion del enemigo Apache."

[5] *Descripcion*, p. 567: "Está á diez y seis leguas al Oriente" of Sahuaripa and an annex to the mission at the latter place. On page 576, it mentions Mochopa and Satechi as still occupied.

antiquities of this region, the fact of the comparatively recent abandonment of these villages should not be overlooked, nor should it be forgetten that several attempts at mining were made during the early part of the eighteenth century, in the interior of the Sierra Madre.[1]

If from the Cerro de Tonivavi we look to the north and the northeast, the bold and pine-clad mountains rising in that direction recall a recent event which has been of great importance to the Southwest in general. It was at Los Metates, northeast of Nacori, in what is called the Sierra de los Parapetos, that the late Major General Crook made the treaty with the Chiricahui Apaches which led to the pacification of that unruly tribe and its return to Arizona. Aside from the political and military importance of General Crook's achievement, and not speaking of the tact and daring displayed by him on this "armed peace mission," as I have elsewhere ventured to designate his campaign, we owe to it the first intimation of the existence of ruins in the interior of the Sierra Madre.[2] The officers of his expeditionary corps, notably Captain J. G. Bourke, have reported that cave dwellings and other ruined abodes, also dikes built for the purpose of forming arable plots on slopes and in the beds of torrents,[3] are met with in what now is a forest wilderness, shunned by civilized man for more than a century, and barely accessible at the present day. With the very limited means placed at my disposal, one year after General Crook's memorable campaign, I intersected his route through the Sierra Madre in several places, and thus became able to testify to the truthfulness of the statements made concerning the antiquities in the interior of the great chain.

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[1] *Descripcion*, p. 600: "Y mas á este rumbo hay muchas minas despobladas en las cercanías de la ranchería de Satechi y hasta bien ádentro de la sierra, como las que éran del real de Guajnopa." It seems therefore that the mines in the interior of the Sierra Madre were abandoned previous to 1764.

[2] This was reported at the close of the campaign, but I have not at my disposal the publications in which the notices appeared. Whether or not Spanish authorities of older date have referred to those ruins, I am unable to say.

[3] *An Apache Campaign*, p. 60: "In every sheltered spot could be discerned the ruins, — buildings, walls, and dams erected by an extinct race once possessing this region." This was in the upper parts of the Cajon de Bamochi, east of the Sierra de Huachinera.

Turning to the regions that bound upon the Yaqui in the direction north of Huassavas, I have already stated that expanses devoid of ancient remains intervene between those in which are scattered traces of settlements. This leads to the inference that the groups geographically separated may have been also politically distinct. I recall in this connection the passage of Castañeda quoted in the preceding chapter.[1] Ribas, a hundred years later, speaks of the Buasdabas (Huassavas) and the Bapispes (Babispes) as distinct tribes,[2] and in the valuable description of Sonora of the year 1764 is the following explicit statement: —

"In the past an office has been created among the Indians, I do not know for what reason, which anciently was unknown to them. It is neither a religious office, nor for the royal service; neither for the public or private good has it any utility. This is the office of Captain General. It is clear that in ancient times it did not exist, either under that name or any other; for those of each cluster or settlement obeyed only the most valiant man who distinguished himself in his community, and they recognized no one as superior to him. Those clusters, although belonging to the same nation, had their dissensions and wars among themselves, as for instance those of Bacadeguatzi with the Baseracas, because the latter were in the habit of coming at night and making their provision of salt in the saline belonging to Bacadeguatzi; and if the former noticed their presence, they went out to defend their rights, as they claimed that the salt, which they used in their dishes, belonged to them exclusively, and that they were the sole owners of it, since they owned no other."[1]

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[1] *Cibola*, p. 157. See *ante*, p. 490.

[2] *Historia de los Triumphos*, p. 359.

This passage is quite instructive. In the first place, we are informed of the Salines in the vicinity of Bacadéhuachi, which are still known to exist, although they are of limited extent, and of the fact that in times anterior to Spanish colonization the natives used salt for household purposes. More important yet is the confirmation of the picture of the social organization of the Opatas, as I presented, though with less positive data, that of the inhabitants in the Sonora valley in times anterior to Columbus.

The distance between Huassavas and the village of Huachinera is fifty miles counting by the winding trail, which after thrice crossing and recrossing the Yaqui, meanders through rugged cañones and over steep and rocky ridges. The yucca plant grows quite tall in this wilderness, and as we rise towards the plateau (Llano) of Huépari oaks begin to appear. Not far from Huassavas, in a recess of the Bacadéhuachi Mountains, there is a cave called Vay-mó-dachi, where the Opatas used to hold secret meetings for magic purposes. Such conclaves were even said to have been held until lately, and they are an indication of some ethnological value. At present the cave is regarded as a resort of witches. To the secret organizations among primitive peoples, and to nightly gatherings of their members in secluded spots, the origin of many popular legends and weird folk-lore tales may safely be attributed.

I did not notice any ruins until I came to the basin called "La Tinaja," at the foot of the steep Cuesta del Jarato. There is permanent water in natural tanks, and I saw the remains of small isolated buildings measuring about 3½ by 5 meters. Rubble foundations and rubbish are all that remain, except some traces of artificial dikes. Pottery, plain, red, and incised, was scattered over the scarcely distinguishable remains, and I noticed here for the first time the foot of a stone metate. This was new to me, and I am in doubt whether possibly the implement may not have been a modern corn-mill, accidentally broken on the spot and left by the owners.

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[1] *Descripcion Geográfica*, p. 595.

The change in climate which one witnesses after ascending by the Jarato to the plateau of Huépari, is striking. A sloping plain covered with high grass and dotted with oaks stretches to the northeast. The wind blows cool and strong over it, and we breathe easily after the days spent in the narrow clefts along the Yaqui. The mountain panorama is extensive; the Cerro of Nacosari looms up in the west, and, in closer proximity, the forbidding Sierra de Teras. In the east rises the wooded Sierra de Huachinera, behind which, in a narrow and wild gorge called Cajon de Bamochi, General Crook and his little force toiled into the Sierra Madre the previous year. In the south, a broad gap divides the Bacadéhuachi range from that of Nacori; but the appearance is deceptive, for the Tahuaro, as this gap is called, is partly a lava-flow almost impassable on account of the rents and gashes in its surface. South of the Huachinera Mountains and east of the Nacori chain rise the crests of the Eastern Sierra Madre. The Tahuaro is remarkable for the profusion of nodules of obsidian contained in its lava, which appear also on the surface of the Huépari mesa, and, with the boulders of hard lava with which the ground is covered beneath the tall grass, render travel rather uncomfortable for the horses. Near the brink of the arroyo or valley of Tesorobabi, the rock becomes more friable, and the obsidian nodules extend only over a part of the declivity. Vegetation crowds into the bottom of the upper part of the valley. Cottonwoods rise in tall specimens and cluster in groves, and wild flowers, such as the Tivin-a-ui, or Yerba de San Pedro, and others, adorn the spot, and poisonous ivy grows in abundance. The bottom, though not extensive, is fertile, and there is an abandoned hacienda at Tesorobabi; there are also said to be ruins in its neighborhood,[1] but I had not time to make any investigations. Thence the trail follows the downward course of the arroyo, and, while the trees diminish in size, there is no decrease in the quantity of wild flowers. Towards the lower end of the valley ruins again appear, which I was unable to investigate, but was assured that they were in all respects similar to those around Huachinera.

This former Jesuit mission, founded about 1645, is now a village of four hundred inhabitants, situated on the banks of the Tesorobabi Creek.[2] Bleak hills, with numerous ruins, surround the fields of the pueblo on all sides. On Plate I. Figure 83, will be found the plat of the ruins on the Mesa Juriban, opposite Huachinera. There is nothing in the appearance of the foundations to which the former houses are reduced to distinguish them from other similar places in Sonora. The same may be said of the remains at the Horconcitos, or Hueri-huachi, Plate I. Figure 84, three miles north of Huachinera, and of those at Terapa, a mile and a half north of the town. Besides the little mounds indicating houses, there are enclosures, without any traces, however, of the checker-board arrangement peculiar to ruins in Southern and Eastern Arizona. I saw no dikes at either of these three localities. What, however, struck me at once, was the character of the pottery. Instead of the coarse and plain ware noticed elsewhere in Sonora, the potsherds showed a degree of perfection which I had not seen farther north, except perhaps at the ruin near San Matéo, in Western New Mexico. Its quality was superior, comparatively thin, and well glazed. The shapes of the vessels were of the usual forms of pueblo pottery, but there were also a few with concave bottoms. All the designs were clearly evolutions from the well known symbols of the Pueblos. I noticed among them the clouds, the whirlwind, the earth, the double "line of life," and the lightning. The colors were of various and even of quite unusual hues, and the lines drawn with care. I was also struck by seeing for the first time a figure in the shape of a large heart. From the vicinity of Huachinera on, this excellent pottery was associated with all the ruins, irrespective of variations in architectural type.

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[1] Bourke, *Apache Campaign*, p. 57: "Alongside of this ranch are the ruins of an ancient pueblo, with quantities of broken pottery, stone mortars, obsidian flakes, and kindred reliquiæ."

[2] In 1884 the population of Huachinera was 290 souls; there was not a house in the whole town valued at more than one hundred dollars.

West of Huachinera a long and sandy wooded valley leads almost due east towards the place where the Yaqui River issues from the sombre gorges of the Huachinera Mountains. This is traversed by the Arroyo de la Calera; afterwards comes a region quite broken, and thickly overgrown with mezquites and cottonwoods; and finally bare hills rise in the northwest, merging into the Sierra de Baserac. Descending these hills, the valley of Cobora is reached and the banks of the Yaqui River, which we had left to the west of us after crossing it the last time on the journey from Huassavas to Huachinera. This is here a roaring torrent, bordered by narrow tillable expanses in spots on the first or lowest tier of terraces above the gravelly bottom. Tall mezquites grow on these terraces in isolated specimens, and here I found a number of ruins of small villages, Cobora, Qui-ta-mac, and Los Otates, all once Opata settlements. For the plan of the first one, see Plate I. Figure 85. It will be noticed that the houses are more regularly disposed than elsewhere in Sonora, forming a hollow square. But none of the buildings exceed in size the average dimensions of those on the Sonora River. A system of dikes has been established near Quitamac, across the course of a gulch that descends a steep incline. Beyond each dike a little platform has been formed, the surface of which contained an accumulation of quite fertile soil. On the highest point of the dike there stood what appeared to be the remains of a small dwelling. It seemed as if the gravelly nature of the river bottom and the impossibility of irrigating the first terrace and of cultivating the steep slopes had compelled the creating of tillable patches in the course of the torrents in the artificial manner suggested. Such dams were quite numerous in this vicinity.

Ascending the banks of the Yaqui for a few miles in an easterly direction, and thus approaching the mouth of the gorge, I visited the ruins of Baquigopa on the north side of the river (see Plate I. Figure 86). Although the buildings are not much larger, they seem from the amount of rubbish accumulated and the height of the mounds to have consisted of adobe with rubble foundations, and possibly to have rested on low artificial platforms. In addition to houses, I found at Baquigopa the traces of a defensive wall of stone reared along the edge of the terrace on which the pueblo is built; and below this terrace extended an area covered with good soil, on which the foundations of small buildings appeared, together with traces of former cultivation. It would have been possible to irrigate this area from the river; but if there were ever any acequias, I was unable to discover them. Crossing the Yaqui again to the south, and traversing the dizzy and dangerous path that winds around the cliff of Civona-ro-co above the raging stream, I visited the ruins of Bat-e-so-pa. These consist of at least seventy or eighty houses in a badly ruined state, stretched out at irregular intervals on a narrow tongue above the river. There are many dikes built across the gulches, which terminate on this tongue.

At Batesopa I was shown a circular depression measuring about ten meters (33 feet) across, surrounded by a low rim three meters (10 feet) in width, looking very much like the threshing floors in use among the Pueblo Indians of New Mexico, except for the slight depression. I was told by an Opata from Huachinera, one of the few who still have a practical knowledge of the Opata language, that the sun and moon had been created here by his ancestors. I copy the story as told me from my Journal of the 18th of April, 1884:—

"The people built two fires, and then began to tickle each other. A man and a woman were found who were not ticklish. They threw the man into one of the fires, and he was changed into the sun, and the woman into the other, and she became the moon. The sun appeared first in the heavens, in the west; whence he proceeded east, there to begin his diurnal course, and the moon followed in like manner."

Afterwards the same Indian told me: "The old people sat together all night in order to invent a name for the sun, and at sunrise they had not yet found one, when a cricket, sitting under a metate near which an old woman was crouching, began to chirp, 'Ta-senide, Ta-senide.' Thenceforward they called the sun 'Ta.' They took the cricket, put it in a safe place, and cared for it until it died of old age."

I give this bit of folk-lore especially on account of its analogy with the Nahuatl legend of the creation of the sun and moon.[1] It is noteworthy that the Opata language has lately been declared to belong to the same stock as the Nahuatl;[1] and while it may be that the tradition is originally Opata, there is a possibility that it was imported by Central Mexican Indians who came to Sonora with the Spaniards.

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[1] *Historia de los Mexicanos por sus Pinturas* (Anales del Museo Nacional de México, vol. ii. p. 90): "Visto que estaba acordado por los dioses de hazer sol,

In connection with these myths I was informed of some historical traditions concerning the ruined pueblos in this remote corner of the upper Yaqui region. They point to the fact that the Opatas of Batesopa and Baquigopa, and perhaps those of Cobora, were frequently disturbed by the inhabitants of Casas Grandes, on the other side of the Sierra Madre. From Batesopa, Casas Grandes may be reached in less than five days of wearisome foot-travel, across a very rough mountain wilderness.[2] It was also asserted that the Opatas of Batesopa in revenge made incursions upon Casas Grandes. At last the aggressions of the Indians from Western Chihuahua became so troublesome, that Batesopa and Baquigopa had to be abandoned, their inhabitants retiring to Terapa in the immediate vicinity of Huachinera. When the hostilities on the part of the Casas Grandes Indians ceased, Bate-

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y auía fecho la guerra para dalle de comer, quizo quiçalcoatl que su hijo fuese sol, el qual tenía á el por padre y no tenía madre, y tambien quizo que tlalocatecli, dios del agua, heziese á su hijo del y de chalchuitli, que es su muger, luna, y para lo hazer ayunaron no comiendo fasta . . . y sacaronse sangre de las orejas, y por esto ayunauan, y se sacavan sangre de las orejas y del cuerpo en sus oraciones y sacrificios; y esto fecho, el quiçalcoatl tomó a buhijo y lo arrojó en vna grande lumbre, y de allí salió fecho el sol para alumbrar la tierra. Y despues de muerta la lumbre, vino tlalocatecli y echó á su hijo en la ceniça, y salió pecho luna, y por esto parese senizienta y escura; y en este postrero año deste treze comenzó alumbrar el sol, porque fasta entonces auía sido noche, y la luna comenzó á andar tras el y nunca le alcança, y andan por el aire sin que lleguen á los cielos." More explicit yet is Sahagun, *Historia General de las Cosas de Nueva España* (ed. of 1829, vol. ii. pp. 245–250); but the quotation is too long to be given here.

[1] Gatschet, *Classification into Seven Linguistic Stocks* (Wheeler's Survey, vol. vii. p. 403).

[2] The wild gorge from which the Yaqui emerges into the low grounds of Batesopa is said to lead, in the first place, to a spot called "Los Taraycitos," where well preserved ruins are reported as existing.

sopa and Baquigopa were again occupied, until finally the Jesuits prevailed upon the people to abandon them permanently, and to settle at Huachinera. These tales therefore apply partly to a period anterior to the seventeenth century, and, if reliable, they cast some light upon prehistoric occurrences. At all events, they tend to show that villages of sedentary Indians formerly existed much farther in the interior of the Sierra Madre than now, and that many of these villages were not the abodes of a "lost race," but simply the results of a former expansion of a stock still existing.

I have already mentioned that the Sierra Madre contains vestiges of cave dwellings, and it is not certain that all of these were prehistoric. Besides the well known fact that a part of the Tarahumares in Southwestern Chihuahua dwelt, and dwell to-day, in caves, many of which are artificially partitioned, I have been able to find a few leaves of the oldest church books of the parish of Bacadéhuachi, on which were recorded several notices of deaths of Indians whom the "enemy" had wounded, and to whom the missionaries went to administer the sacraments in the caves in which they lived.[1] It seems, therefore, that even during the historic period there were Opata (or Jova) Indians who resided in such natural shelters; and also, that, as I have repeatedly remarked, cave dwelling is not peculiar to a distinct stock or tribe, but a result of natural causes, or of circumstances affecting the security of living.

The artificial objects which I noticed in connection with the ruins described are like those around Huachinera, and the potsherds exhibit the same superiority in design and make. The pieces are mostly thin, but very hard. I was informed while at Huachinera that layers of excellent mineral paint, of various hues, crop out in the neighborhood of Nacori. These mineral deposits may have exercised some influence upon the quality of the pottery; but it is surprising that at Nacori itself the ancient pottery should belong to the crude and almost undecorated variety peculiar to the Sonora valley, and that the finer kinds should be found about forty miles farther north. Painted specimens are found occasionally in localities where the common kinds prevail, but they are extremely rare. East of Nacori, in the main sierra, the potsherds are said to belong to the handsomely decorated class. The places where they were noticed cannot be very far, in a straight line, from the Nacori valley.

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[1] *Libro de Difuntos de Bacadéhuachi*, 1655, MS.: "Matauan los Opauas adentro de las cueuas, endonde biuían antes de cristianizarse, y les daban sagrado, porque estauan catequizandoles."

From Huachinera to Baserac, the distance is about twelve miles. At first, the trail follows the Tesorobabi torrent, which below Huachinera is not perennial; then it enters a broad and open valley, "rather bleak. The heights on both sides are low and somewhat rocky, but not so rocky as farther south. There is hardly any vegetation but low cedars, mezquites, and arboriferous Opuntiæ. Everything looks 'New Mexican.' At the Estancia, a large hacienda, the Yaqui is crossed again; it is a broad, swift, and limpid river, which here has emerged from the cañones of the Sierra de Baserac, and soon after turns to the north. Remaining on the east side of the river, we crossed bare hills and dry gulches, until we emerged again into the valley, which there has assumed an almost semicircular form. The village of Baserac lies directly above the river on a steep bluff, not so high as the one on which Huachinera is built."[1]

A little east of this trail, and a few miles only to the south of Baserac, an arroyo winding through a series of basins is traversed by a number of artificial dikes. The arroyo is enclosed by bleak hills not over fifteen meters (49 feet) high, from which the rock projects in ledges and benches; occasional cedars or junipers, and a few mezquites, grow on them, and the tops are covered with grass. The bottom of the gulch is the usual sand and gravel, except behind each of the traversing dikes, where triangular or quadrangular patches of soil have formed as high as the original height of the dikes. That height nowhere exceeds 1.5 m., or 4 feet 10 inches, and their thickness is not over 0.5 m., or 22 inches; they are regular walls of broken stones laid in adobe mud, and the grade on an extent of 120 meters is not quite 12 meters. I noticed no traces of buildings in connection with these dams, but there are ruins within a compass of a few miles, among which is the ancient pueblo of Ta-mi-cho-pa, of which only faint traces remain, — so faint, indeed, that it was impossible to secure a ground plan. It lies on the north side of the Yaqui, on a plateau showing signs of former cultivation. Tamichopa is a historic pueblo. It was inhabited until 1758, and there was also a Spanish rancho near it. On Saturday before Palm Sunday, while the inhabitants were all away from their homes, the Apaches set fire to the houses, and everything was consumed except the chapel, and the place remained deserted thereafter.[1] Opposite Tamichopa, on the terraces above the river, on what is called the Mesa de la Prensa, are ruins of enclosures, and also of a few houses. I have given a plan of the former on Plate I. Figure 87.

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[1] *Journal*, April 21, 1884.

The old pueblo of Baserac stood, as I was informed by an aged Opata living in the village, on the east bank of the Yaqui, although to-day it stands on the western. The present church is a clumsy adobe building, but there are still remains of an older edifice, built by the Jesuits. A few arches of stone resemble the style of the seventeenth century, and the beams in the present temple may also be ancient. There are many descendants of Opatas in the place, but I found only a few who could speak the language. Even among these there was much difference of opinion concerning the derivation of the most current local names, and while my informants unanimously confirmed the traditions related above, as to hostilities between the people of Casas Grandes and the Opatas of Batesopa and Baquigopa in early days, and the consequent abandonment of these villages, their statements concerning other subjects were conflicting and contradictory.

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[1] *Descripcion*, pp. 577. 585: "El por los Apaches abrasado pueblo y estancia Tamichopa, que asi lo llaman por el mucho chamizo que aqui se da en las vegas del rio. . . . Tamichopa, pueblito y estancia de la mision de Baseraca, fué destruido y quemado (dejando intacta la capilla) por los Apaches el año de 1758 vispera de Ramos. Fué la dicha de sus pocos naturales Opatas hallarse en la ocasion todos fuera de él para quedar con sus vidas."

West of Baserac the Sierra de Teras rises in frowning crags, over which there are only one or two passes, and it is moreover poorly supplied with water. On its eastern base lie ruins, at a distance of about twelve miles from Baserac. The place is called Los Metates, and forms a basin surrounded by steep heights at the foot of the mountains. Oaks grow in clusters, and tall grass covers the bottom, in which there is permanent water. The site is in appearance completely shut out from the outside, looking like a hidden corner, a secluded retreat. From the base of the lofty cliffs narrow tongues of rock descend and traverse the bottom, forming mesas of inconsiderable height with steep sides and partially bare tops. On the upper ends of these mesas stand some oaks, and grass in bunches and tufts grows wherever possible. One of these mesas is about 146 feet high, and on its western side ascent is apparently impossible, while it is also very difficult from the east. Upon it are ruins, mostly made up of lines of parapets, the lower ones of which consist only of rocks laid on the surface. On the top of the mesa are dry walls; elsewhere rocks, two to five times the size of a man's head, form the parapets, all of which have been artificially broken. One structure is evidently an enclosure, and there is in fact only one ruin that appears to have been a building. Nevertheless, there are a number of large metates, some of them very well preserved and apparently little used, and also considerable of the handsomely painted ancient pottery. It looks as if the height had been occupied only a short time, and the dwellings had been constructed only of the frailest material; and as if it had been hastily abandoned. (See Plate I. Figure 88.) There is an upright post of wood, which has been hewn and squared with implements of iron. The walls at that place are 0.90 m. (35 inches) high, 0.60 m. (2 feet) thick, and although of dry work are built with considerable accuracy and neatness. The wooden post is called a whipping-post (picote) by the natives, but I was unable to obtain any information from them in regard to the history of the ruin. It was manifestly a fortified hill, or "cerro de trincheras," like Batonapa, Tonibabi near Nacori, and others. If the hewn post is of the same date as the ruins, it would indicate that the latter belong to the historical period. Several settlements of Opatas, such as Teras, Guepacomatzi, and Toapara, are mentioned in the past century as lying north of Opoto, and as having been abandoned on account of the persistent hostilities of the Apaches, Sumas, and Jocomes.[1] I am unable to decide whether Los Metates was one of them. From the statement that both the first and the last mentioned had a small church, I infer that neither of them can have been the place which I speak of. There is a bare possibility, however, that the Opatas driven from one or the other of those pueblos might have found a temporary refuge in this hidden recess of the Teras range; in which case the traces of work done with iron tools might easily be reconciled with the other more primitive features of the ruins.

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[1] *Descripcion*, p. 585. "San Juan del Rio, los Opatas llaman al paraje Toapara. Era antiguamente poblacion de Opatas, visita del de Tera á doces leguas arriba de Opotu: se ven todavia las ruinas de una pequeña iglesia que hubo; despues fué real de minas muy ricas por la continua batería que daban los Apaches. Guepa Comatzi, cueva grande, fué una ranchería de Opatas á tres leguas rio arriba con buenas tierras. . . . Tieras, pueblo y mision de Opatas, cuatro leguas de Guepa Comatzi, el cual se habían agregado muchos Bumas y

Before reaching Los Metates, the valley of Las Escobas has to be traversed. It is more grassy, but the grass conceals large boulders which render walking very disagreeable. Oaks are scattered over the bottom, and a rivulet of limpid water trickles through it. In places this has been dammed up by dry walls constructed with boulders neatly piled. The main one of these is 1.3 meters (4 feet 3 inches) high, and behind it extends for five meters (16 feet) a space of rich arable soil. The garden plots thus formed are very small; but here, as well as at Los Metates, the large boulders strewn everywhere were an almost insuperable obstacle to cultivation. As at Los Metates, the works at Las Escobas appeared in a good state of preservation.

Taking a different route from the one by which I had reached Los Metates, I satisfied myself that most of the country west of Baserac, as far as the Teras range, is devoid of ruins. On a rock above the broad Arroyo de las Flechas, which terminates at Baserac, there were formerly

Jocomis, administrada de frailes Franciscanos: Hasta que por un mulato mayordomo disgustado, se alzaron dichos Sumas y Jocomis, y tripulados entre Apaches empezó dicha nacion á guerrear y hostilizar á estos pueblos, y los Opatas de dichos puestos se agregaron parte á Opotu, parte á Teurizatzi, etc. El padre misionero tuvo á tiempo aviso de la sublevacion y se retiró á Babispe, por lo cual habiendole buscado los alzados para matarlo á la mañana, como no lo hallaron, quemaron iglesia y casas, cuyas ruinas aun subsisten."

some rock carvings representing arrows;[1] now they are almost obliterated.

East of Baserac rises the low and barren mountain chain which bears the name of the village.[2] I heard of caves that had once been inhabited, one of which turned out to have been used as a distillery of mezcal; the others I could not visit, but I penetrated as far as Joi-tu-da-chi, in the sierra, entering it by a picturesque cajon, through the bottom of which a lively brook is running. Joitudachi is a dismal spot, a bald ridge with very steep slopes. Below it is a dry arroyo traversed by artificial dikes, and on the brink above stands a ruin (Plate I. Fig. 89), containing the only specimen of Opata house architecture in which the walls are in part intact. They are from 0.30 to 0.35 m. thick, and built of thin plates of sandstone imbedded in adobe mud. Their height on the north side (on the south they are destroyed) is not over four feet. Every trace of the roof has disappeared, and the pottery, etc. is as usual. On both sides of the Cajon of Mechapa ruins are said to exist, and to be of the usual description. I also heard of caves in which witches were wont to gather, and of nightly processions from one of these caves to the other. An Opata of Baserac assured me that in a cave in the sierra sandals of yucca had been found, and that his ancestors used to wear them until after the coming of the Jesuits; at the present day moccasins are generally almost exclusively worn.

The most northerly point along the Yaqui is Babispe. That unfortunate village has been completely destroyed since my visit, by the earthquake of May, 1887. It had a large and massive church, built towards the end of the last century, after the Franciscan order had taken charge of the missions which the Jesuits were forced to abandon. Of the old temple no trace remains. Fertile lands extend in the bottom below the pueblo, but east of the river the mountains rise in steep slopes. I found painted pottery and traces of ruins adjacent to the pueblo, and at La Galerita, midway nearly between Baberac and Babispe, a small cluster of houses and enclosures of the usual type stand near the dwelling of Jesus Escalante.

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[1] So I was informed; I did not examine the place myself.

[2] Sierrita de Baserac.

Such small hamlets may be found at various places along the Yaqui River. At San Miguel, as already stated, rock carvings are known to exist, but I could not proceed in that direction, as my plan was to cross into Chihuahua in order to visit the ruins of Casas Grandes. I therefore took leave of Sonora at Babispe, which is the last settlement towards the northeast. The country north of it has been traversed and examined by the officers of General Crook's expedition on their march towards the Sierra Madre in 1883. I copy from the work of Captain Bourke the description which he has given of the scenery between San Bernardino, on the United States boundary line, and the Babispe valley: —

"The whole country was a desert. On each hand were the ruins of depopulated and abandoned hamlets, destroyed by the Apaches. The bottom lands of the San Bernardino, once smiling with crops of wheat and barley, were now covered with a thickly matted jungle of semi-tropical vegetation. The river banks were choked by dense brakes of cane, of great size and thickness. The narrow valleys were hemmed in by rugged and forbidding mountains, gashed and slashed with a thousand ravines, to cross which exhausted both strength and patience. The foot-hills were covered with *chevaux-de-frise* of Spanish bayonet, mezcal, and cactus. The lignum-vitæ flaunted its plumage of crimson flowers, much like the Fuchsia, but growing in clusters. The greasewood, ordinarily so homely, here assumed a garniture of creamy blossoms, rivalling the gaudy dahlia-like cups upon the nopal, and putting to shame the modest tendrils pendent from the branches of the mezquite.

"The sun glared pitilessly, wearing out the poor mules, which had as much as they could do to scramble over the steep hills, composed of a nondescript accumulation of lava, sandstone, porphyry, and limestone, half rounded by the action of water, and so loosely held together as to slip apart and roll away the instant the feet of animals or men touched them."[1]

There are said to be ruins near San Bernardino, which was deserted previous to 1852, on account of the Apaches.[2] Between it and Babispe there was only one considerable hacienda, at Batepito,[3] where I have heard there are ruins. Of settlements of Indians within historic times I know of none nearer than about Fronteras, where a mission and frontier garrison existed; its Opata name is Cu-quia-ra-chi. North of Fronteras lay Santa Rosa, and in the vicinity Turi-ca-chi and Cu-chu-ta, — all Opata villages which the incursions of the Janos and Sumas obliged their inhabitants to abandon.[4] The description of Sonora, of the year 1764, mentions ruins near San Bernardino, in the valleys of Cu-chu-ve-ra-chi and Batepito, but adds: "There is no recollection of the people who lived in the said localities. From what I learn, I have no doubt that the Opata nation extended over these countries, and what causes me to believe it is, that many of these places have names in that idiom, like Batepito, or turn of the waters, Cuchuveratzi, or valley or torrent of the fish called matalote, Naideni, Bacatzi, etc."[1] While the evidence presented by the author of the "Geographical Description" is not absolutely convincing, yet, in presence of the emphatic statements of the Opatas that their stock originally came from the north,[2] the conjecture is legitimate that the ruins north of Babispe are those of Opata settlements, as well as those farther south.

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[1] *An Apache Campaign*, p. 44.

[2] Bartlett, *Personal Narrative*, vol. i. p. 255.

[3] *Descripcion Geográfica*, p. 606.

[4] *Descripcion*, p. 605: "En primer lugar nos encontramos con él de Fronteras ó Santa Rosa Corodeguatzi. . . . Este fué el primero y único presidio de Sonora desde 1690 hasta 740; porque como por los años de 686 se alzaron los Jacomis, sumas y Janos y se unieron con los Apaches, empezando á hacer guerra á los Opatas, asaltaron el dia 10 de Mayo de 1688 el pueblo de Santa Rosa, á cosa de ocho leguas al Norte de Cuquiaratzi, y á este dicho 11 de Junio de 89, por lo cual los Opatas de Santa Rosa se retiraron al paraje en que ahora está dicho pueblo." The three missions named were founded in 1653. *Catálogo de los Partidos*, p. 794.

The orography of the region north of Babispe deserves a brief notice. The ranges or clusters of mountains are in fact continuations of the cordillera, which, in Arizona, terminates on the Mexican frontier with the southern ends of the Chiricahuis. South of it rise in succession the Pitaycachi, Sarampion, and finally Oche-ta-hué-ca, which is also called Sierra de Babispe. All these mountains are comparatively arid, and their profiles are as sharp and rugged as those of any of the Sierra Madre or more western chains. A little to the east of them rises the Cabellera as a transverse range, while the others run in a southeasterly or southerly direction.

The pass over which the trail to Chihuahua crosses is usually called the Pass of Carretas; between it and Babispe I noticed no ruins. It is a wild and mountainous country with narrow valleys, partly covered with thickets and groves, partly bald and bare. From the height of the Cuesta Grande, where the last ascent is made, we gaze as it were upon another world.

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[1] *Descripcion*, p. 605.

[2] The same is stated *of* all the natives of Sonora by Ribas, *Historia de los Trivmphos*, p. 20: "Y finalmente en los informes que sobre esta materia hize, siempre halle rastros de que todas estas naciones, que se van asentando de paz en nuevas reducciones, salieron de la parte del norte."

XIV.

NORTHWESTERN CHIHUAHUA.

THE Cuesta Grande is noted in the history of the past century for the innumerable murders perpetrated there by the Apaches and their allies, the Janos, Sumas, and Jocomes.[1] The ascent to the crest is steep, and the trail narrow and leading in places by the side of precipices. It is interesting to watch a train of a hundred or more pack animals and saddle horses creeping up the dizzy slopes. On the crest the view changes, and in place of deep mountain gorges, a broad level stretches to the east, bleak, bare, and solemn. Dark hills of lava scattered over the foreground alone interrupt the monotony of this elevated plain.[2] In the north towers Ochetahueca, clad in dark pines; farther on along the horizon distant ranges rise of the Sierra de las Espuelas, near the boundary line of the United States, looking pale in the morning light. No trees appear to cover their slopes, but in strong contrast with these bleak mountains stand the northern branches of the Sierra Madre south of us. The Sierra Tesahui-nori, which is the most western of the three branches composing the great chain at this end, is covered with forests of pine. Watercourses trickle through its gorges into the level plateau, there to sink and disappear. The first of these brooks which the trail intersects is crossed at the hacienda of Carretas.

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[1] *Descripcion Geográfica de Sonora*, p. 578: "Á tres leguas de Babispe al Nornordiste empieza la famosa cuesta de Carretas, por los muchos estragos que en ella han hecho los Apaches en las vidas y haciendas de los pasajeros y traficantes."

[2] I have no means at command for ascertaining the elevation of Carretas or of the plateau on which it stands, but estimate it at about five thousand feet.

Carretas was formerly inhabited by tribes which to-day are extinct; there was a settlement of Sumas and Janos, which had been gathered around a chapel forming a mission. This mission was administered by the Franciscans of the province of Zacatecas,[1] and was abandoned in consequence of the outbreaks which began after the rebellion of the Pueblos of New Mexico, in 1660.[2] It appears that in

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[1] Fray Francisco de Arlegui (*Crónica de Zacatecas*, p. 105) places the foundation of the mission of Carretas about 1660, but erroneously. Francisco de Gorraez Beaumont, *Informe al Virey Marqués de Mancera*, p. 233: "Al segundo año de mi gobierno en aquellas provincias, haciendome capás de ellas, tuve noticia como en este paraje citado de las Casas Grandes y otro llamado del Torreon y las Carretas y su circonferencia había muchos Indios llamados Yumas y otras naciones que pedían ministro de doctrina que mediante el se bautizarían y recibirían el Santo Evangelio; y aunque á los principios por cosa no usada ni vista, no di crédito á ello, se fué corroborando esta voz á los pasajeros que iban y venían desde el Parral al Reale de Sonora." Further on he says: "Soy de opinion que será muy del servicio de su Majestad el que se pongan las tres doctrinas en el paraje de las Casas Grandes, Carretas y Torreon." Therefore in 1667 the mission of Carretas had not yet been established, and it did not even exist in 1669. *Informe de Oficiales Reales*, August 17, 1669, p. 256. It was established between that year and 1680. *Descripcion Geográfica de Sonora*, p. 586: "Á estos no ayudaria foco para fortalecer esta frontera, ejecutar lo mismo en los pueblos desiertos, el uno de Carretas que fué tambien de la administracion de los Frailes Franciscanos, de nacion Suma, que se alzó." Rivera, *Diaro y Derrotero*, p. 45: "Y encontrando con las ruynas de vn pueblo y mission de Yndios Sumas q̃ Huvo en el paraje que se nombra Carretas."

[2] I am unable to fix the date positively, but the general uprising of the tribes took place in 1684. The *Descripcion Geográfica* (cap. ix. art. ii.) places it in 1686, and Arlegui (*Crónica de Zacatecas*, p. 104) between the years 1686 and 1690, stating that between these two years the missions of Carretas and Torreon were destroyed by the Apaches. Still, it is certain that the Janos had already risen in 1684. *Testimonio sacado á la letra de los autos de pedimento del Cabildo, Justicia y Reximiento en que piden lisencia para salirse de este puesto*, MS., fol. 1:

1834 there was again a hacienda at Carretas, which was afterwards destroyed by the Apaches. It was subsequently reoccupied, then abandoned again, and in 1884 was still in ruins. Since that time it has been purchased by Americans, and is said to be now in a flourishing condition.

Carretas is a beautiful spot, but for agricultural purposes its resources are slight, as the arroyo, though perennial, carries but little water. But for a cattle ranch it has few superiors, if any; the wooded foot-hills of the Sierra Tesahuinori come down to within a short distance of the dwellings, and the soil is light and productive. Tall grass spreads out everywhere except on the ridges and masses of dark lava scattered through the extensive plain. Between the Cuesta and Carretas I noticed no signs of ancient ruins; and this is easily explained, since not only is the intervening country destitute of water, but volcanic and other rocks frequently crop out unfit for tillage. When we reach the light and white soil, resembling that on the Lower Gila and on the Tempe delta, ruins of ancient habitations reappear along the course of the stream, on the border of the plain, near what is called El Vado.

The appearance which these ruins present is strikingly different from that of any of those investigated by me in Sonora. They resemble the ruins on the Gila and Lower Salado, inasmuch as they consist of low mounds of white earth, indicating buildings larger and more substantial than those of Sonora, and connected with them were enclosures. The walls surrounding the latter were embankments of the same material as the mounds with some traces of stone-work.

"Y despues que V. M. tomó posesion havido sublivacion general de todas las naciones comarcanas fués an llegado á profanar los vasos sagrados en la mision de N. Sa. de la Soledad de los Xanos." If Janos was attacked in 1684, it is presumable that the more exposed mission of Carretas suffered about the same time.

The mounds are about 1½ meters (5 feet) high, and covered with all kinds of well painted potsherds like those found in the ruins of Northeastern Sonora. Metates and crushing-pins, besides pottery, were the only manufactured objects noticed by me on the spot. On Plate I. Figure 91, I have given a reduced plat of this ruin. There are faint traces of stone or rubble foundations on one of the mounds composing this cluster; otherwise it is clear that buildings and enclosures were of the same kind of white adobe as the walls at Casa Grande and other ruins on the Gila. Whether or not the enclosures protected cultivated patches I could not determine; it seems unlikely to me, however, that they could have been reared for defensive purposes. They are different from the enclosures of Arizona, since the latter surround the central edifices and have buildings attached to their inside.

This ruin is not the only one in the vicinity of Carretas. There are others, I was informed, farther down the arroyo, where it is still perennial.

After crossing from Sonora into Chihuahua by way of the Cuesta Grande and reaching Carretas, one finds the landscape so different from what it was on the western flanks of the Sierra Madre that he is scarcely surprised at meeting also a different variety of ancient aboriginal architecture. The climate of the plateau is cooler than in the valleys of the Yaqui; there are no trees, only grass and cactuses covering the dreary plain. Strong cool winds blow over it, and there is no shade nearer than the mountains; frail houses, even if resting on rubble foundations, would not have sufficed for permanent abodes, and thick walls were therefore a necessity. That they should be of the same kind of adobe as on the Gila resulted from the similarity of the soil, and, besides, it was easier to manufacture adobes than to break and pile the hard lava rock that crops out here and there on the surface.[1]

The well established fact, that the Sumas and Janos dwelt in the vicinity of Carretas in the seventeenth century, and probably at an earlier date, raises the question whether the ruins there may not be perhaps those of their settlements. This, however, would attribute to the tribes named a higher degree of culture than we are authorized to allow them according to Spanish authorities.[2] We have no evidence that either of these tribes lived in houses built of solid material, like those at Carretas or Casas Grandes. Although it is not impossible that they may at some remote period have undergone a change in culture that brought about a decline in architectural and other arts, there is no proof of it to my knowledge.

From Carretas on, the landscape becomes, if possible, more monotonous; the plain stretches to the east and north, and the Sierra de en el Medio looms up in front of the Espuelas, and of the chains along the boundary line of New Mexico. In the south, another northern branch of the Sierra Madre, the Sierra de San Pedro, succeeds the Tesahuinori chain, and we already catch a glimpse of the third and most easterly ramification, the Sierra del Carcay. At "Lagartos,"[3] the return trail of General Crook's corps is intersected by the road from Babispe to Janos. In the east low and bald ranges loom up, the Sierra de Janos, the Escondida, and the Palotada, while in the west the mountains of Sonora sink below the horizon. The plain gradually dips towards the east, and not a drop of permanent water is found between Carretas and Los Alisos.[1] The latter is a dry arroyo, but at the so called Ojitos there are springs, and also ruins (Plate I. Fig. 91) similar to those at Carretas. The mounds are smaller, and the enclosures larger, and it can be distinctly seen that they were cultivated areas. These remains are, so far as I know, the only ones between Carretas and the course of the Casas Grandes River near Janos. At the latter place, seventy miles east of Babispe, we strike the main line of ruins, which extends from Ascension in the north to the interior of the Sierra Madre.

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[1] I allude here to the resemblance between the Gila ruins and those of Northwestern Chihuahua without in the least intending to imply that they are those of the same people. This may be possible, but similarity in architecture is by no means sufficient to prove it.

[2] See Part I. of this Report, pp. 87–93.

[3] This name was given to the place on account of the large sized-lizards said to live in a rocky eminence rising by the side of the road. The day was cold, and they did not show themselves out of their hiding places. In this century "Lagartos" was the scene of a massacre perpetrated by the Apaches upon a convoy.

I have already stated that the Sierra Madre begins south of the trail from Babispe to Janos, or about in latitude 30¾°, and it is composed of three parallel ranges, the Tesahuinori in the west, the San Pedro in the middle, and the Carcay in the east. The first two are pine-clad and with more gentle declivities, although the gorges are narrow and rugged; the Carcay is a mass of frowning walls, crowned by towerlike cliffs and battlements. I heard of ruins in the valleys that separate these chains, and was also told of ruins in the first two. There are certainly remains at the Casa de Janos.

In the vicinity of Janos I investigated two ruins, represented on Plate I. Figures 92 and 93. Their appearance resembles that of the mounds near Agua Dulce, and between Casa Grande and Florence, on the Gila. They form whitish hillocks covered with bits of well painted pottery; and in one place a wall has been excavated, which is seen to have been 1.1 meters (3 feet 7 inches) thick, and of identical make with the ancient adobe walls in Southern Arizona. Two rooms as far as exposed measure respectively 3.0 and 2.4 by 2.5 meters (10 and 8 by 8 feet), but I am inclined to believe that they were larger. The size of the largest mound is about 20 by 15 meters, or 65 by 49 feet.

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[1] This was the scene of the engagement between Colonel Garcia of the Mexican troops and the Apaches under Gerónimo, in 1882.

Janos is a comparatively ancient settlement. Its vicinity was held by a tribe of that name, or one which the Spaniards called by that name. This tribe, as stated in the first part of this report, has completely disappeared, having been absorbed by the Apaches in the beginning of the past century.[1] About 1727, seventy families of Sumas were added to the few Janos still living near the place, but this colony of Sumas also gradually disappeared.[2] Janos became a frontier garrison (Presidio) at an early date.[3] In 1684, its native inhabitants killed their priest, Fray Manuel Beltran, and sacked the buildings of the church, as well as those of the Spanish colonists.[4] It was reoccupied some time afterwards, and the

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[1] See Part I. page 91.

[2] In 1726 Don Pedro de Rivera found a small settlement of Sumas at Janos. *Diario y Derrotero*, p. 45: "Quando arrivé segunda vez al Presidio de Janos encōtré en él las setenta familias de los Yndios de la nacion Sumas que queda preuenido, no quisieron poblarse en el presidio de el Pasco: y haviendome aplicado con la mayor atencion á fin de que dichos Yndios se redujesen á vida política, y se retirasen de la infeliz en que andaban. Se consiguió el fin que se pretendía; facilitandoles su quietud cō agregarla al pueblo inmediato de los Yndios Janos: por cuyo medio se libertó la tierra de los enemigos de aquella nacion que la hostilizaban."

[3] Its name was Santiago y San Felipe de Janos. Rivera, *Diario*, p. 29. The Presidio must have been founded after 1686. Escalante, *Carta al Padre Morfi*, par. 7.

[4] Escalante, *Carta*, par. 7: "Subleváronse los Zumas y los Janos, y estos por medio de los Mansos infieles quitaron la vida á su ministro el Padre Fray Manuel Beltran, destruyéron el templo y profanaron los ornamentos sagrados. Llamábase esta mision Nuestra Señora de la Soledad de los Janos." *Causa Criminal q̃ se a seguido contra los Yndios Xptianos Manssos por Denunsiasion, etc.*, 1684, MS. fol. 28. A Manso Indian testified in regard to this massacre: "Que es berdad que para matar al Pe Beltran y á los otros Españoles fueron nuebe ynfieles ayudandoles á los Janos y Sumas." *Testimonio sacado á la letra de los autos del Pedimento del Cabildo, Justissia y Reximienio*, 1634, MS., fol. 1:

Janos were subdued by Don Domingo Gironza Petriz de Cruzate, Governor of New Mexico, but residing at El Paso del Norte.[1] According to Villasenor y Sanchez, the Presidio in 1748 was garrisoned only by forty-seven soldiers and four officers.[2] In 1857 the garrison was removed from Janos to Casas Grandes, where it remains to-day.

South of Janos the Casas Grandes River, there running about from south to north, passes through wild and bleak gorges, in which no vestiges of antiquities exist to my knowledge.

I have stated in one of the previous chapters that the Casas Grandes River empties into an inland basin, the centre of which is occupied by several shallow lagunes, thus forming a separate drainage system between the Rio Grande in the east and the Yaqui in the west. These lagunes lie on Mexican territory between the parallels of 31° and 32°, and the meridians of 107° and 108° west. The three principal ones are the Laguna de Guzman, the Laguna de Patos, and the Laguna de Santa Maria. The first, which is also the largest, receives the waters of the Casas Grandes River; the second, those of a small stream, called Rio del Carmen; and the third, the Rio de Galeana, or Santa Maria.[3] Owing to the flatness of this lake country and the nature of its soil, and also to lack of precipitation during the greatest number of months in the year, the extent of these shallow lakes is quite variable.[4] I have heard of ruins situated not far

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"Pues an llegado á profanar los vassos sagrados en la mission de Nra Sra de la Soledad de los Xanos, matando á vn relixioso y vna familia de Españoles."

[1] Escalante, *Carta*, par. 7: "Perseveraron todos estos en su rebeldia dos años, hasta que no pudiendo mantener la incesante guerra que D. Domingo Gironza hacía matando y apresando á muchos de ellos, se rindiéron y pidiéron paces el año de 1686."

[2] *Teatro Americano*, vol. ii. p. 365.

[3] Pedro García-Conde, *Ensayo estadistico sobre el Estado de Chihuahua*, 1836, p. 12.

[4] Ibid., p. 13, speaking of the Laguna de Guzman: "Su tamaño es muy varia

from their shores, but could not verify the truth of the statement. Along the Casas Grandes River ruins are found as far north as the vicinity of Ascension, but I had not time, on my journey from Casas Grandes to Deming, to examine them closely. They loom up like whitish mounds, and some of them appear to be of considerable size. I saw potsherds that had been picked up on their surface, which looked like the ancient pottery of Janos and Northeastern Sonora. North of Ascension, although the river runs through a grassy plain, it is in a channel of from ten to twelve feet in depth, and with vertical sides, so that access to its waters is difficult.[1] Trees and shrubs grow along the banks in the channel, but the plain is destitute of all vegetation except low and scrubby mezquite. Under these conditions the construction of irrigating ditches became quite a severe task, and this may have been at least one of the reasons why I failed to find any traces of antiquities between the Espia, an isolated conical hill some distance north of Ascension, and Deming in New Mexico. The plain south of Deming to the Mexican frontier, a distance of at least forty-five miles, has no other perennial water than occasional springs, and the Boca Grande is an arid and rocky mountain cluster, and so is the Sierra de la Hacha farther west. There may be a few small ruins on the upper slopes of the latter mountain, but I am not sure of it.

The inland basin of which I have here spoken, therefore, if not completely devoid of ruins, seems to be without any considerable number of them. Between the Casas Grandes

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ble, pués en el tiempo de las aguas sobresale de sus regulares bordes y en el rigor de la seca es muy reducido."

[1] This channel is narrow, but descent to the river on horseback is impossible sometimes for a distance of ten miles. It is quite a trying situation to ride for hours within sight of the water without being able to get the thirsty animal to it. The only spring of any consequence on the plain is the Ojo de la Mosca, not far from the boundary line of the United States.

River and the lagunes rises the Corral de Piedras, an arid chain in which I have been told no ruins exist except those of Apache huts, and of large, rudely made enclosures, said to be of modern origin. Ancient remains, therefore, are limited to the upper courses of the streams that empty into the lagunes from the south and some of the valleys descending into them, and to the Upper Rio Mimbres in New Mexico. Of the last I have spoken in Chapter VII. The difference in architecture between the northern and the southern ruins is considerable. The former are all small buildings of stone with stone enclosures; the latter, in the lower regions at the foot of the Sierra Madre, are large buildings of adobe, often many-storied, similar to those on the Lower Gila of Arizona, and indicating more extensive settlements and a larger population.

Between Janos and Ascension there is a mountain pass through which the river has cut its way, in which I noticed no ruins. Neither did I see any south of Janos for twenty-five miles, or as far as the plain of Corralitos. This hacienda, with mining works, dates from this century, and lies in a broad valley, which extends, with various narrowings, as far as Casas Grandes. Everywhere in the valley the soil is easily cultivated and fertile when irrigated. Groves of cottonwood line the banks of the river at intervals. It is a beautiful valley, not so extensive as that along the Gila and the Tempe delta, but quite as favorable for agriculture; but it is colder, since its altitude is about four thousand feet, and snow falls nearly every winter, remaining on the ground sometimes for several days. While therefore the Casas Grandes valley was, on a smaller scale, also a "centre of subsistence" for land-tilling aborigines, it is still neither in extent nor in general resources so well suited for the increase and establishment of a considerable Indian population as are those portions of Arizona. Nevertheless, it is a very interesting region, and one in which native culture in the Southwest probably attained its highest development. It is also happily conditioned in the sense that, while its natural resources are considerable, the climate is sufficiently temperate to inspire man to activity, and not to depress his moral and physical powers in the same degree as in warmer countries where the contrast between the seasons is less marked.

The mountains bordering the valley on both sides seem to be devoid of ruins. From Corralitos the rugged Carcay is plainly seen, and between it and the valley rises the Pajarito, a naked volcanic chain of lesser elevation. South of it, due west of Casas Grandes, the Cerro de Montezuma dominates the valley. In the east also there are barren chains like the Cerro Colorado and the Escondida, so that the valley lies between two cordilleras which gradually converge. Fifteen miles south of Casas Grandes the space separating them narrows to a gap between volcanic heights, called the Boquilla. Farther on lies San Diego, where the Casas Grandes River is formed by the junction of the Rio de Palanganas with the Rio de Piedras Verdes. The Palanganas rises due south, and is flanked on the east by the Sierra de Ancon; the Piedras Verdes descends from the northwest, and has its source between the Sierra de San Pedro and a more southerly ramification of the Sierra Madre. This chain, which looms up ten or fifteen miles west of San Diego, beyond an arid plain, is the Sierra de la Madera de Casas Grandes, at least twenty-five miles distant, and to it the inhabitants of the valley have to resort for their wood. The profile of the chains is not strongly marked, and its slopes are densely wooded. The eastern ramifications of the Sierra Madre, except the Carcay, have less rugged profiles and bear more vegetation than the western branches of the great central chains.

Along the rivers Casas Grandes, Palanganas, and Piedras Verdes the ruins are disposed in groups as well as in isolated mounds; they are therefore far from constituting a continuous line. Near Corralitos I saw but a few inconsiderable remains, but after leaving the abandoned hacienda of Barranco Colorado white eminences loom up conspicuously here and there. It may be seen at a glance that the houses which crumbled into these hillocks of white sandy clay were in many cases two or more stories high. I counted at least fourteen groups of mounds, and isolated ones, some of which were not higher than 0.50 or 1.5 m., and one group is shown on Plate I. Figure 92*a*. The highest of the three mounds composing the cluster appears to be three meters, but it is impossible to determine its elevation without excavating to the ground floor. Mounds of a similar character are visible also on the east side of the Casas Grandes River, but they are not as numerous, since the valley there is narrower than on the western side. The river runs in a shallow groove, and the ruins are always at a distance of from one half to one and two miles from it. The intervals between the groups vary greatly; sometimes they stand near together, again a mile or more separates two groups. Nowhere did I see a cluster indicating a considerable pueblo; nevertheless, owing to the size of the houses, it is possible that the largest group may have contained several hundred inhabitants. Potsherds are strewn over and about the mounds, striking on account of the brightness of their colors and the regularity of their designs, as well as for the thinness and hardness of the clay and their fine glaze.

About four miles north of Casas Grandes, the valley narrows, and, after turning an angle, the village of Casas Grandes appears. It is a town of dilapidated adobe buildings, with a population of one thousand souls, and with barracks occupied by about four hundred soldiers. The church is the usual adobe pile, and poorly equipped with ornaments and decorations. Before reaching the village, the ruined church of San Antonio de Padua de Casas Grandes is passed, standing on the second tier of terraces above the river, with its walls still of their full height. Around it the soil is covered with fragments of the same pottery as that on the ruined mounds. I am unable to state precisely when this church was built, but it must have have been after 1667, and some years previous to 1680.[1] In 1726 it was still in use, the Franciscan order from Zacatecas administering to the spiritual wants of the unimportant settlement of Spanish colonists and Sumas and Conchos Indians.[2] In 1748 the church was already abandoned, and a single dilapidated hacienda, called Santa Ana Bienes, contained the remnants of the once prosperous population.[3] The uprisings of the Sumas in 1684, their subsequent alliance with the Apaches, and the depredations of the latter, had accomplished its destruction. In the present century, after Casas Grandes had been repeopled, the sufferings of its inhabitants from the savages, principally since the outbreak in Sonora of 1831 or 1832, were sometimes fearful; neither life nor property was safe until 1884. The Apaches, Janeros as well as Chiricahuis, had their strongholds in the Sierra Madre, whence they could descend with impunity upon the settlements.

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[1] It is certain that in 1667 there was no church at Casas Grandes, although Arlegui intimates that the mission had been founded before that date; his statements are positive. The date of 1680 I infer from the importance which the settlement at Casas Grandes had then acquired through its production of wheat and the number of cattle raised there. Compare, in regard to the last two points, Fray Francisco de Ayeta, *Carta al Virrey*, 1680, MS.

[2] Rivera, *Diario y Derrotero*, pp. 35. 47: "Y haviendo pasado el pequeño rio de Casas Grandes hize noche á la vanda de el Veste de él, en vna Estancia de Ganado, que llaman S. Antonio. . . . Y encontrando con el pequeño pueblo y mission de S. Antonio de Casas Grandes, habitado de cinco ó seis familias de Yndios Conchos y Sumas, y administrado por religiosos de S. Francisco, hize noche cerca de él, en vna hazienda de labor, situada á la vanda de ueste de el rio, como lo está dicho pueblo."

[3] Villaseñor y Sanchez, *Teatro Americano*, vol. ii. p. 363: "El Valle que llaman Casas Grandes, tambien muy ameno, aunque de poco pueblo, por lo inhabitando y peligroso, por cuya causa no se pueden cultivar sus tierras por falta de gente. Manteniendose algunos vecinos con sus huertas en gran miseria, sin poder adelantarlos. En dicho tránsito está otro puesto con el mismo peligro, que el antecedente, endonde se halla extinguida aquella doctrina, que auía de religiosos del Seráphico Órden, por auer desolado el pueblo, ó pueblos, que en dicho valle auía, sin auer quedado en él más, que un Indio. Inmediatamente a dicho pueblo, oy demolido de Casas Grandes, está la hacienda, nombrada Santa Ana Bienes, cuyas tierras son abundantes de frutas de Castilla."

Half a mile south of the present village are the famous ruins from which the name Casas Grandes, or Great Houses, derives its origin. They lie on the southern extremity of a terrace which rises above the river bottom, and is traversed by several small gulches running in the main from northwest to southeast. A considerable portion of the ruins lying nearer to the river has been partially built over with modern houses, so that their full extent can hardly be ascertained; but I believe the plan on Plate I., Figure 93*a*, will give a fair idea of them. Besides being quite extensive for Southwestern ruins, they are also compact, so that the population, if we take into consideration the fact that the houses were several stories high, may have amounted to three or four thousand souls. In that case it would have been by far the largest Indian pueblo in the Southwest, and twice as large as the most populous village known to have existed farther north.

I refer to the ground plan of the edifices which I could survey and measure (Plate VI.), where it will be seen that the buildings which are partly intact stand on the southern limit of the whole cluster. The site is well selected, commanding an extensive view. The ground is gravelly, as the terraces generally are, and ledges of rocks protrude here and there. The cultivable bottom land commences at the foot of

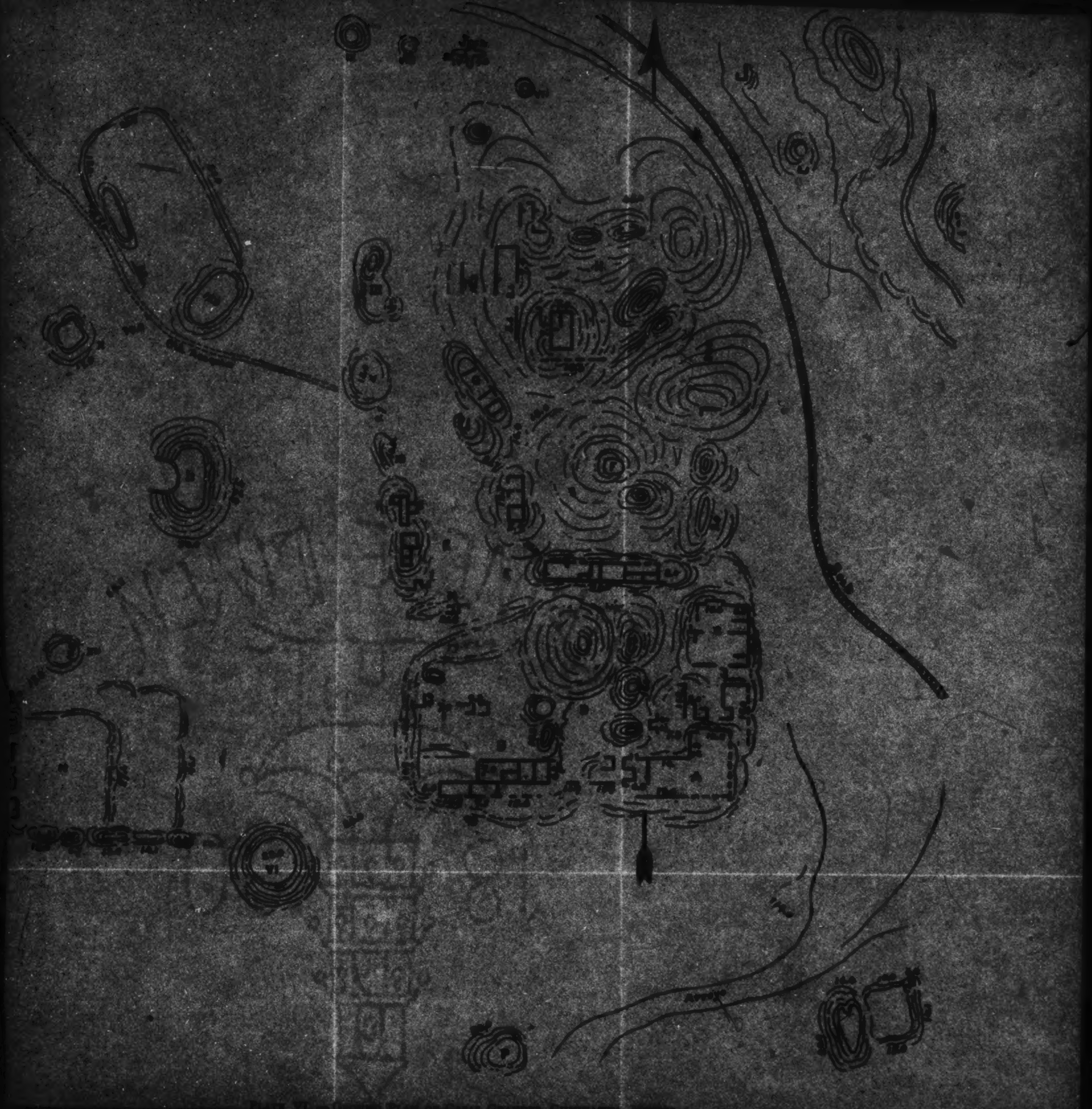

Plate VI.—Ground Plan of Casas Grandes, Chihuahua, Mexico.

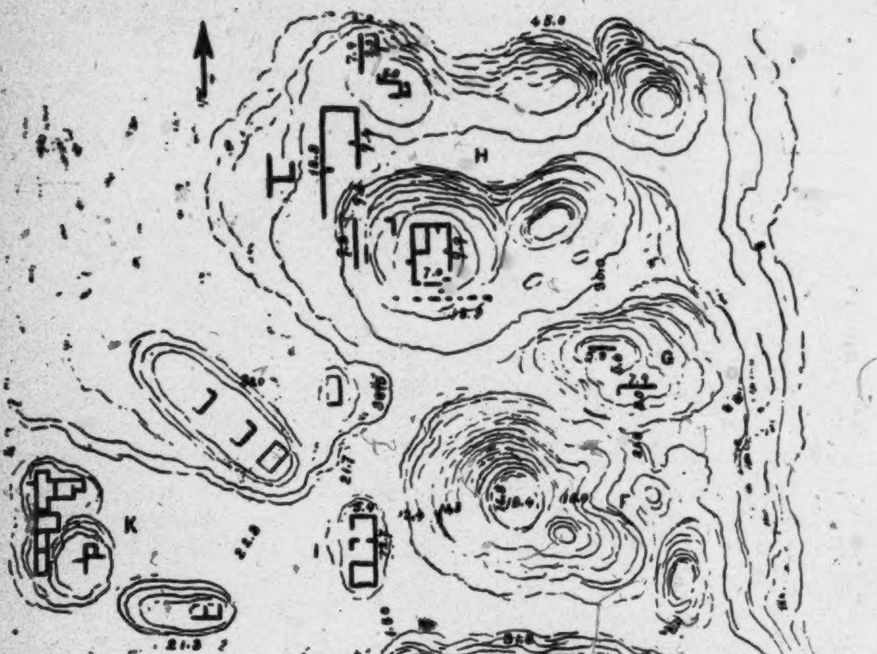

PLATE VII. — MAIN PORTION OF RUINS OF CASAS GRANDES.

the terrace, which is only a few feet above it. A part at least of the pueblo, therefore, was built on ground unfit for cultivation, but adjacent to such as was tillable, and not farther from the river than a quarter of a mile. No enemy could approach Casas Grandes in the daytime without being discovered. In the west a bleak terrace stretches as far as the foot of the Cerro de Montezuma, at least three miles distant. In the east the whole bottom, and the terraces and hills beyond, together with the farthest mountain slopes, lie open to the view; to the south every crag and cleft in the Sierra del Cristo may be scanned; and in the southeast, between bare heights, the Pass of Chocolate opens naked and bleak, leading into the fine valley of Galeana. Except the cottonwoods and the fields along the river, only a scrubby and dusty vegetation covers the ground. The light of the sun is reflected from the white slopes with a dazzling glare.

The walls exposed in the ruins are in places two or sometimes three stories high, and their thickness varies between 0.40 m. (16 inches) and 1.2 m. (4 feet). They are of the same make and pattern as those of the ruins in the Tempe valley, so amply described by Mr. Cushing. (See Plate VII.) Most of the rooms are large, with some exceptions, and the doorways are of quite a good size. The air-holes and apertures for light deserve the name of windows; they are round, rectangular, and elliptical or oval. One round window measured 0.38 m. (15 inches) across; an elliptical one opened in a corner was 0.85 m. (2 feet 10 inches) by 0.40 m. (16 inches); and a rectangular one measured 0.50 m. (20 inches) in width. The lintels of the doors as well as of the windows were of wood, and mostly 0.15 m. (6 inches) thick. They seemed, from the impressions which were left, to have consisted of flat or half-round pieces, but I could not determine the kind of timber used. Of the roofing or ceiling I saw but one specimen. Round beams from 0.13 to 0.17 m. in diameter (5 to 7 inches), supported a superstructure of ocotilla poles and earth. The floors were of earth, and the walls were covered in places with a thin coating of whitewash, and I noticed traces of fire on them.

A wall with two superposed grooves, the upper clearly the groove of the ceiling, but the lower oblique and ascending almost to that ceiling, seems to indicate a flight of steps; but I could not determine positively whether it was a staircase or not. If it was, the inhabitants of Casas Grandes had made quite an important stride in architectural progress. Of ladders I saw no trace.

The question of the form of these edifices, whether they were like the pueblos of the north, with retreating terraces, or with a central tower, as Casa Grande, or massive blocks with straight walls to the top, is a difficult one to determine. The conical shape of the mounds would lead to the inference that the central parts were higher than the outer ones; on the other hand, there are outer walls still standing which are three stories in height. From the older descriptions of Casas Grandes in my possession, I cannot gather any light on this subject. Mr. Bartlett, who has furnished a careful description of the ruins, says: —

"From a close examination of what remains of the building or buildings, I came to the conclusion that the outer portions were the lowest, and not above one story in height, while the central ones were from three to six stories. Hence the large heaps of ruined walls and rubbish in the centre, and in consequence the better preservation and support of that portion of the edifice. By far the larger portions which have fallen are the exterior walls. This arises from the moisture of the earth and the greater exposure to rains. The central parts are in a measure protected by the accumulation of rubbish, and by the greater thickness of their walls."[1]

Mr. Bartlett saw Casas Grandes fully thirty-eight years ago, or more than thirty years previous to my visit to the place; and was therefore able to notice a great many features which have since disappeared; nevertheless, I do not believe that the houses had as many stories as he attributes to them. Four, or in some edifices five, is the most I could allow.

The ruins of Casas Grandes stand close together, even appearing to be crowded in a small compass. Alleys, rather than streets, separate the various mounds; and although the width of these passages must have been greater when the edifices were intact, there is nowhere, so far as I was able to detect, any square or public yard of considerable extent. There is less distance in this great pueblo from one mound to another than in the ruins between Casas Grandes and Corralitos, and much less than at Casa Grande in Arizona. This is a singular feature. The houses at Casas Grandes are also those best preserved in the whole region.

That the object of these great houses was, first of all, the abode of the people, can scarcely be doubted. The objects scattered about the ruins almost everywhere are mostly household articles and utensils. No place has been dug into without metates, pottery, and other articles of daily use coming to light. Still it is not improbable that places of worship were also included from the descriptions given. I was not able to make any excavations, and do not venture any opinion. Fetiches have been found at the ruins, but where and under what conditions I could not ascertain. One quite remarkable find is of considerable importance in an ethnological sense.

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[1] *Personal Narrative*, vol. ii. p. 350. García-Conde (*Ensayo Estadístico*, p. 74) is more positive: "Entre estas ruinas se encuentran dos especies de habitaciones muy distintas: la primera consiste en un grupo de piezas construidas de tapia y exactamente orientadas según los cuatro puntos cardinales: Las masas de tierra son de un tamaño desigual, pero colocadas con cimetria y descubre mucha habilidad en el arte de construirlos por haber durando un tiempo que excede de trescientos años. Se reconoce que este edificio ha tenido tres altos y una asotea con escaleras exteriores y probablemente de madera. Este mismo género de construcciones se encuentra todavía en todos los pueblos de los Indios independientes del Moqui al N. W. del Estado. Las mas de las piezas son muy estrechas, con las puertas tan pequeñas y angostas que parecen calabozos. Todavía existe en muchas partes el enjarre de las paredes cuya finura é igualdad demuestra la inteligencia de los arquitecos." Escudero (*Noticias Estadísticas del Estado de Chihuahua*, 1834, p. 234) copies the above textually.

In one of the large mounds which are now partly built over, and in which only excavations of small depth can be made, a little room was opened in which, I was told, a large meteorite was found. It was noticed that the block, which was of unusual size and of a silvery hue, had been originally wrapped up in some kind of matting, which crumbled as soon as air was admitted into the chamber. The meteorite was afterwards removed to the city of Chihuahua, where it fell into the possession of Don Enrico Miller, or Müller, an old and prominent resident, but where it is now I could not ascertain.

Upon the supposition that the above statements are correct, the finding of this meteorite in one of the buildings of the ancient pueblo becomes a very interesting feature. It is not to be presumed that the aerolite fell into the building, but it is much more likely that it was found elsewhere and carried to the place where it was subsequently discovered. That it was enveloped in matting shows that superstitious care was bestowed upon it, that it was considered as a fetich, and therefore that the small room in which it was discovered had some religious purpose.

It is well known that the States of Chihuahua, Durango, Coahuila, Zacatecas, and even Jalisco, have been frequently the site of falls of large meteorites. The number of such blocks of huge size found in those States is remarkable. In the State of Chihuahua alone, at least three, and probably more, enormous aerolites have been discovered. These blocks fell, as far as known, during times anterior to the Spanish period. There existed among the Indians of Western and Central Chihuahua a tradition to the effect that the fall of at least one of these masses had some connection with the movements of some of the tribes. The tradition is confused, for the reason that the Spanish authorities relating it bring it into relation with the supposed migrations of Central Mexican tribes from the north to more southerly regions.[1] While it would be wrong absolutely to discard such an interpretation, since we have no means of testing it, it is well to recall here the fact of the discovery of the Casas Grandes meteorite. The folk-lore alluded to by the Spaniards in the sixteenth century, however, was not applied to that meteorite, since Casas Grandes was then unknown to them, but to one of the large meteorites in Southern Chihuahua.[2] From all appearances the tradition was peculiar to the Tarahumares and the Tepehuanes, tribes which, according to the latest linguistic investigations, belong to the same stock as the Opatas, Pimas, Yaquis, and also the Nahuatl of Central Mexico.

My inability to excavate the ruins has rendered it impossible for me to ascertain anything concerning ancient burials. I have not heard of skeletons having been discovered inside the great houses; but there are structures which remain enigmatical to me. These structures lie west and northwest of the measurable portions of the ruins, and appear on the plan under the numerals I. to V. and VII. to XII. (Plate VI.) With the exception of I. and IV., they are solid elliptical or circular mounds, of various heights, composed mainly of gravel. They suggest the idea of artificial platforms upon which buildings were to be erected; but I saw no traces of foundations, and the level on which they are situated is already higher than that of the great houses themselves. Nos. I. and IV. are still more peculiar; while the others are low, hardly over one or two feet high, I. rises to an elevation of 3.5 m. (11½ feet). It has been excavated in the centre, and the section shows nothing else but a solid mass of gravel. It is a mass of gravel, with a rim of stones extending around its upper slopes at a few inches below the top, which is flat, and thickly strewn with fragments of pottery. This artificial elevation is connected with a partly ruined enclosure, the interior of which is free from gravel, and was slightly moist. The enclosure consists of an embankment supported by a stone wall, similar to the dikes near Baserac in Sonora. The stone wall was built on the inner side, and the surface of the area thus enclosed is thirteen hundred square meters, or a little more than one fourth of an acre. The star-formed structure IV. is a low heap of gravel with a slight depression in the centre.

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[1] Villagran (*Historia de la Nueva México*, cantos i. and ii.) is, so far as I know, the earliest printed authority in which this tradition is mentioned. A condensed version of it is found in Zárate-Salmeron, *Relaciones de todas las Cosas, etc.*, 1626, par. 105 to 108.

[2] The locality is identified by Zárate-Salmeron (*Relaciones*, par. 105) as "tres leguas de Santa Bárbola, media legua abartado del Camioi por donde pasan los carros que van al Nuevo México."

The little artificial eminences, numbered IV., VII., VIII., and IX. are scattered in a line along the brink of a dry gulch which bounds the southern complex of the ruins on the north, northeast, and east, merging into the bottom proper. What their object may have been, I cannot surmise, neither can I imagine the purpose of the other mounds.

In regard to I., it is well to note that it lies on the line of an old acequia, so that it seems as if the enclosed area with which it is connected stood in some relation to the irrigating ditch, although I do not venture to suggest that it was originally a garden plot.

I could not find any signs that the low mounds mentioned were pyral mounds, and nowhere did I see any trace of combustion. Still I was afterwards informed that a layer of charcoal and ashes, containing charred bones, had been noticed near the top of mound II. The excavation in the latter mound was made for the purpose of treasure-seeking. As in many other places in the Southwest, Casas Grandes is credited with fabulous ancient wealth. Before referring to the irrigating ditches, traces of which exist at and near Casas Grandes, I will mention the building N. Mr. J. R. Bartlett has also spoken of it in his valuable work.[1] The plan of this building is so different from that of the other houses that the thought arises whether it may have been of modern origin. Still the potsherds are ancient, although less numerous. The ground plan of this ruin recalls that of a house of a Spanish Mexican hacienda, and the building was only one story in height.

It will be noticed that one-story edifices are not uncommon at Casas Grandes, and that they stand mostly on the outside of the large clusters, rather than between the many-storied buildings. The rooms are on the whole considerably larger than in northern ruins, those on the Gila and Salado excepted.

I am in doubt as to whether some of the buildings stood on platforms or not. The open space forming the southeast corner of the group A appears as if raised a foot or two above the rest. Still, the amount of rubbish is so considerable that it is impossible, without excavations, to determine whether the substructure is artificial or not. On the southwestern corner of the same group are traces of an enclosure of adobe, similar to the one around the Casa Grande, and to the walls surrounding the mounds at Tempe and the Casa Blanca.

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[1] *Personal Narrative*, vol. ii. pp. 360–362.

Comparing the architecture of Casas Grandes with that of the Gila, it strikes me that the settlement was more compactly built, and that the edifices present a higher degree of skill, if not in the manner in which they are constructed, at least in that in which they are arranged. They were manifestly not for habitation alone, but also with the view of defence. There are, as far as I could see, no fortifications proper, but the size and situation of the buildings, their number, and the strength of the walls, were a means of protection against an Indian foe. The buildings were really fortresses, as well as houses. Where a cluster is as large as Casas Grandes it is probable that the downfall was gradual, and probably brought about by various causes.

Of all the objects found at the ruins of Casas Grandes the pottery attracts the principal attention. Not that it is any better than that found in the ruins of that section in general, for it is of the same make and type; but the number of specimens found in a good state of preservation is striking. The decoration on these vessels — I have seen but very few plain ones — derives its patterns from symbolic figures which are like those of the pueblos of New Mexico. In addition to the painted pottery, there is also plastically decorated ware, but all of this that I have seen is also painted. One jar showed very crude corrugations, but still was painted reddish brown; another kind of pottery had regular indentations carefully painted in various colors. It may be remembered that, in speaking of the corrugated pottery found at Fort Apache, I said that it was painted, but without regard to harmony with plastic designs. Lastly, I have heard of pottery with human figures, colored in alto-rilievo, but was unable to procure any specimen. I was assured that the figures are grossly obscene. Mr. Bartlett has given fair representations of the Casas Grandes pottery.[1] The shapes are like those of New Mexican pueblo pottery, with the difference that the bottoms are convex.

The metates of Casas Grandes differ from others seen by me in the Southwest in being much better fabricated, and even sometimes elaborately carved. They are generally square, and nicely finished, but I saw one of crude make. A double metate of lava was shown to me, and Mr. Bartlett has figured one with legs.[1] Whatever crushing-pins I saw were prismatic, and not cylindrical as they are farther south. I noticed mortars of lava, fairly made, and one pestle, with the head of a mountain sheep rather well sculptured. The last implement was of syenite. Stone axes are like the well known instruments of the kind from Arizona. I heard of cotton cloth found in the ruins, and of threads of yucca fibre. I have seen many turquoise beads and ear pendents of turquoise precisely like those worn to-day by the Pueblo Indians or found in the ruins; also shell beads and many shells, entire as well as broken and perforated. The following species have been identified from the copies made by me in colors: *Turritella Broderipiana*, a species from the Pacific Coast; *Conus Proteus*, probably from the West Indies; *Conus regularis*, from the West Indies; and a *Columbella*, locality not given. All the univalves found at Casas Grandes, as far as I know, are marine shells. The finding of such shells at a point so far away from the sea-coast and nearly equidistant from the Gulfs of Mexico and of California, is a remarkable feature, implying a primitive commerce or inter-tribal warfare which carried the objects to the inland pueblo at Casas Grandes.

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[1] *Personal Narrative*, plate to page 362.

Two interesting finds I have still to report. One is a fetich of the puma (*Felis concolor*), " mountain lion," or cougar. The specimen was of small size, apparently made of some kind of actinolite, and the figure was exactly like the fetiches of the mountain lion, called at Zuñi "long tail." It might have been manufactured in New Mexico, so great is the resemblance. Another piece was only the head of the same animal, of larger size and of the same kind of stone. If the body was in proportion to the size of the head, the whole figure would have been as large as a small domestic cat.

It is quite likely that the main portion of the fields lay in the bottom near the river, where the land is very fertile and can easily be irrigated. South of Casas Grandes and at a distance of about two or three miles, an ancient acequia may be followed for a distance of about half a mile. It is nearly 5½ meters (18 feet) wide, and, although it has no artificial lining, the sides are raised, one meter on the west, and 1¾ meters on the east (3 and 5⅞ feet), so that it is a mere shallow trough. This acequia stretches across from one side of a bend of the river to the other, but I was unable to find whether it merely connected the sides or extended farther. There are some ruins on the dunes west of it, as well as on the eastern bank.

The main irrigating ditch, however, which is traceable at Casas Grandes, enters the ancient village from the northwest (see Plate VI.), and can be traced for a distance of two or three miles. It runs almost straight from northwest to southeast, and I have been told that it takes its origin about three miles from the ruins, at the foot of higher slopes, and near a copious spring. It looks therefore as if it had conducted the waters of the spring to the settlement for household purposes only. Indeed, after passing the enigmatical structure marked I., it empties into the circular tank V., the diameter of which is 15 meters (49 feet). The depth of this tank is still 1.6 meters (5 feet). South of it I was unable to trace the ditch any farther; but there is, near the house N, and thirty meters west of the building B, another tank, VI., 22 meters (72 feet) in diameter, with a rim one meter high and 12 meters wide (3 and 39 feet). This tank is two meters deep in the centre. It is not impossible, therefore, that the acequia, after passing through or by the tank V., continued its course in order to supply the larger basin VI. also.

The acequia is best preserved on the terrace in the northwest of the ruins. There its course is intercepted by gulches, and the section is therefore very plain. It seems that, at a depth of about four feet below the present surface, a layer of calcareous concrete formed the bottom of the shallow trough through which the water was conducted. This channel is about ten feet wide, and, what I had never seen before in the Southwest, was carried on a steady and very gradual incline by means of artificial filling, and probably by wooden channels crossing intervening gulches. The calcareous concrete forming the bed of the acequia may be artificial, in which case the channel at Casas Grandes would be similar to the lined water-conduits at Tule in Eastern Arizona. This is interesting, since it shows that tribes living under natural conditions so different as to develop distinct varieties of architecture have resorted to the same contrivances for purposes of irrigation.

Another acequia, 4.3 meters (14 feet) wide and also slightly raised above the ground, showing four longitudinal rows of stones laid at intervals of from four to six feet, may be traced in the bottom. It looks more like a road-bed than like a ditch, still I cannot conceive it to have been anything else.

It seemed to me as if both these channels had been connected, and as if they were but branches of the main line running across the terrace, one deflecting to the west of the ruins to fill the two artificial basins (V. and VI.), the other entering the bottom between the western part of the ruins and that portion of them lying in the bottom. But it may be that the lower acequia derived its waters from the river. At all events, it seems clear that the inhabitants of Casas Grandes had made considerable progress in irrigation.

Ruins are said to exist on the east side of the river also, and opposite the main cluster; but I was not able to visit them. Having heard many reports concerning relics of antiquity both south and west of Casas Grandes, and at the same time having satisfied myself that the ruins did not extend to the east any farther than the first or second terrace above the river, and that they were of the same description as those already investigated by me, I determined to penetrate as far as San Diego, where the Casas Grandes River is formed by the junction of the Palanganas and Piedras Verdes, in order to examine the ruins along the banks of these two streams, and finally to turn to the west and investigate as far as possible the eastern ramifications of the Sierra Madre. My object consisted especially in verifying the truth of reports touching the existence of caves or cliff-houses in the interior of the great chain. I also desired to ascertain whether there were ancient remains in the mountains of the same type as those at their base.

The only ruins of any consequence which I saw between Casas Grandes and San Diego were those situated near the Boquilla, which are represented on Plate I. Figure 94. They consist of mounds, and of walls of lava blocks connecting them, which seem to have been intended for defensive purposes. The mounds are, as will be seen, smaller than those on more open expanses, and the site is traversed by several dry arroyos. All the potsherds scattered about, although of the same kind as those at Casas Grandes, are much more decayed. A peculiar structure is the one standing opposite the ruins, and on the south side of the river. It is an artificial mound 1½ meters (5 feet) high towards the side from the stream, and 5 meters (16½ feet) towards the water's edge. While the bulk is made of adobe, the base is surrounded by a casing of large flags of stone. The appearance of the ruins, the length and solidity of the stone walls, as well as the situation, lead to the inference that the village may have been located there for the purpose of defending the entrance to the valley from the south, or at least of impeding the approach of an enemy from that quarter. The population of the village cannot have exceeded three hundred souls.

This ruin lies in what is called the "Malpaïs," or lava-fields. The Cerro de Montezuma in the west, and rugged heights of lava in the east, approach each other, and a short distance south of the ruins the two ranges form a gorge, the Cerro de la Boquilla, a steep and rocky mass rising abruptly above the east bank of the stream. At San Diego, a short distance beyond the Boquilla, a bleak plain begins, which stretches to the west as far as the eastern slope of the Sierra Madre. The Rio de Palanganas is lined by cottonwood groves; but the Piedras Verdes has less shade. Along both streams rise, rather conspicuously, the white mounds of many ruins, scattered in small clusters. On the plain itself, as it is destitute of water, only an occasional small artificial mound appears.

I could not detect the slightest difference between the ruins situated on the two rivers mentioned, in sight of each other, and separated only by short distances. Plate I. contains (in Figures 95, 96, 98, and 99) plans of those groups, the first two lying on the Palanganas near San Diego, and the other two on the Piedras Verdes. I have no comments to make touching these ruins, since they are of the same type as those near Corralitos and Carretas, therefore of the Casas Grandes variety, only smaller than the great houses. They suggest the former existence of quite a number of small settlements composed each of several large houses, many-storied, or at least two stories high in most places. Their elevation is difficult to ascertain, without excavating to the ground floor. One group on the Piedras Verdes was 1.6 meters (5 feet), and another 3⅓ meters (10 feet 10 inches) above the surrounding level. There were adobe enclosures connected with the mounds, as at Carretas and at Ojitos, and on the Gila; and the pottery was of the same kind as at Casas Grandes.

The plain between San Diego and the foot of the Sierra Madre is a gradual incline covered with grass, on which antelopes were grazing in herds when I crossed it on the 25th of May, 1884. The grass had been recently burnt off. The width of the plain I estimate at ten, perhaps twelve miles. Where it abuts against the mountains, scrubby oaks appear, and at the Puerto de San Diego the ascent of the Sierra commences. The Arroyo de la Cuerda here empties into the plain. On both sides of this arroyo, and partly across its bed, are dams and dikes exactly like those which I have repeatedly described in the preceding chapter. Between the dikes extend more or less regularly shaped plots of tillable land, called by the inhabitants of Casas Grandes "labores," or tilled patches. The quantity of water running down the arroyo must be considerable during freshets, but in the dry season there is only a little rivulet near the base of the mountain. Connected with these artificial garden beds are ruins of houses, small buildings containing from two to four rooms.

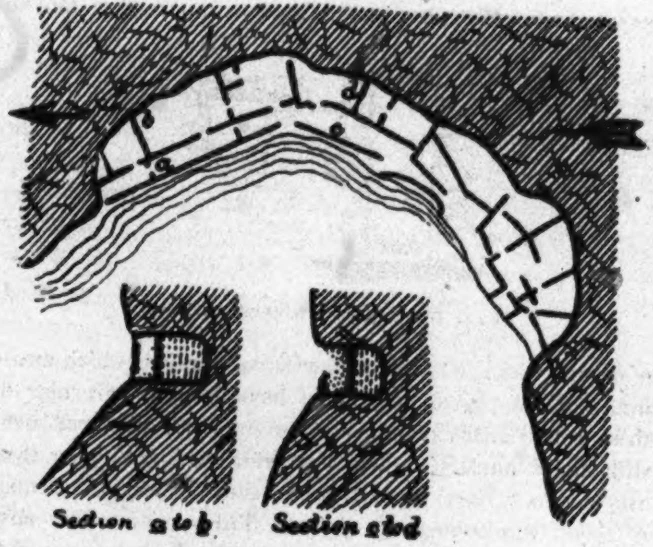
The walls seem to have been partly of adobe, partly of stones; and small stone enclosures are connected with them. (see Plate I. Fig. 97). The mound, which measures about twenty-one by twelve meters, indicates a one-storied building, and is surrounded by a system of stone enclosures on three sides, resembling a combination of the checker-board and central mound ruins of Arizona. The potsherds are like those of the other ruins, but much more decayed.

The so called Puerto de San Diego, a very picturesque mountain pass, ascends steadily for a distance of five or six miles. On its northern side rise towering slopes, the crests of which are overgrown with pines. In the south a ridge of great elevation terminates in crags and in pinnacles. The trail winds upwards in a cleft, and is bordered by thickets consisting of oak, smaller pines, cedars, mezcal-agave, and tall yucca. As we rise, the view spreads out towards the southeast and east, and from the crest the plain below and the valley of Casas Grandes, with bald mountains beyond, appear like a topographical map. Turning to the west, a few steps carry us into lofty pine woods, where the view is shut in by stately trees surrounding us on all sides. The air is cool; deep silence reigns; we are in the solitudes of the eastern Sierra Madre.

From the crest of the Casas Grandes chain narrow ridges run in every direction almost, forming long and narrow grassy valleys, with shrubs as well as clumps of trees growing in them. Turkeys, deer, and other game, roamed about in numbers at the time when I wandered through these sections. From the tops of the ridges an extensive view is occasionally enjoyed to the west, the northwest, and the southwest. Pine forests cover hill and vale, and higher summits loom up along the horizon. Only a few peaks of considerable altitude appear in the west, which my companions pointed out as belonging to the mountains of Sonora. I doubt the accuracy of their statement, as it would be impossible to see the chains of Sonora from the Casas Grandes range.

These solitudes, rich in beautiful forests, in running water, and in narrow but fertile valleys, have for more than a century been the lurking places of the Apaches. It was difficult, and very dangerous, to pursue them thither. There a branch of them, the so called Janeros, was formed out of the remnants of the now extinct tribes of Sumas, Janos, and Jocomes, and of bands of Apaches who had drifted at an early date into Western Chihuahua. Until 1884 the Chiricahuis occasionally roamed through this wilderness, and the band of the notorious Juh, who was drowned in the Rio de Piedras Verdes in 1884, made their home in these forests.

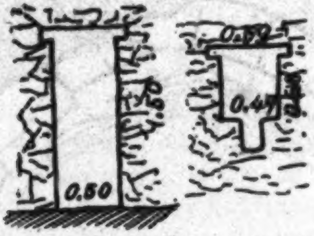
These mountain fastnesses are well adapted to the residence of small clusters of agricultural Indians seeking for security. I therefore neither saw nor heard of ruins of larger villages, but cave dwellings were frequently spoken of. Some very remarkable ones are said to exist near the Piedras Verdes, about two days' journeying from Casas Grandes. I saw only the cave dwellings on the Arroyo del Nombre de Dios, not far from its junction with the Arroyo de los Pilares. They lie about thirty-five to forty miles west-southwest of Casas Grandes. The arroyo flows through a pretty vale lined on its south side by stately pines, behind which picturesque rocks rise in pillars, crags, and towers. The rock is a reddish breccia or conglomerate. Many caves, large and small, though mostly small, open in the walls of these cliffs, which are not high, measuring nowhere over two hundred feet above the level of the valley. The dwellings are contained in the most spacious of these cavities, which lies about two miles from the outlet of the arroyo. They are so well concealed that, along the banks of the stream, it is easy to pass by without seeing them. The wall in which the cave opens is partly inaccessible, and a single trail leads up on a narrow ledge, which terminates, at an altitude of 27 meters (88½ feet), at the entrance of the cavity. The height of the cave, which is wholly natural, is 2½ meters (8¼ feet), and its greatest depth does not exceed 5 meters (16½ feet). I subjoin the ground-plan of the cave, with its partitions 0.34 m. (14 inches) wide, made of a white material similar to the adobe of the ruins in the Casas Grandes region. In front of the rooms runs, almost along the brink of the precipice, a wall which near where the trail enters the cave reaches as high as the roof, thus forming a corridor with the walls of the apartments in the rear. Where the



Cave Dwellings on the Arroyo del Nombre de Dios, Chihuahua.

outer wall is lower, it is crowned with irregular battlements. In this purely protective or defensive exterior device circular loopholes are so disposed as to command the trail.

On the whole, the walls inside of this cave were not only well preserved, but they displayed more care and neatness in their execution than those of most of the cave dwellings which I had examined farther north. The doorways resembled those of Casas Grandes, only they were smaller, as were the windows. (See sketches annexed.) Lintels were formed of round sticks of wood, and over one window, which measured 0.68 by 0.59 m. (27 by 23 inches), there were nine of these round sticks placed side by side and plastered over with adobe mud. One doorway, which was not higher than 1.25 meters (4 feet), opened into a short gallery, the ceiling of which was formed by eighteen little canes. The only artifiical objects which I noticed lying about were a few potsherds, and one metate showing very little traces of having been used. The Apaches have left traces of their presence in some very rude pictographs, and a number of names were also written on the walls, showing that I was by no means the first visitor there who could read and write. I was unable to decipher the inscriptions, which were nearly effaced.



Cave Dwellings at Nombre de Dios.

The number of inhabitants which this cave could have sheltered is small. On the Rio de Piedras Verdes another cave is said to exist that contains thirty-four rooms; and I heard repeatedly of other ruins, but saw none. I could not penetrate deeper into the mountain fastnesses without an escort. From the scenery which presented itself to the eye as often as a crest was reached, I judged that the interior of the sierra, or at least that part of it east of the Sonora boundary line, is heavily wooded, and traversed by narrow valleys with perennial water.

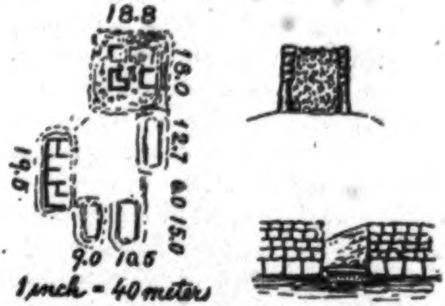
Along the course of the Nombre de Dios, there are narrow strips of fertile soil, where the inhabitants of the cave dwellings described may have had their patches of cultivated ground. In winter it is colder than at Casas Grandes, and on the morning of the 24th of May ice formed on the surface of the water of the stream. The ancient dwellers in this region enjoyed also an abundance of game, deer, turkeys, and bears, being quite common, and fish in the stream. In the early morning, before the sun rises, the large green parrot which the people of Casas Grandes and vicinity call Guacamayo, or macaw, flutters from tree-top to tree-top, filling the air with its discordant screams. If the interior of the Sierra Madre is ever opened to travel and civilization, it will be found prolific in resources of divers kinds, and as interesting to the naturalist as to the student of archæology.

I returned from the Arroyo del Nombre de Dios to Casas Grandes by a different route, and on the return trip I examined the ruins on the Rio Piedras Verdes. Between the banks of that river and Casas Grandes on the northern flanks of the Cerro de Montezuma, I saw no vestiges of antiquities.

The Cerro de Montezuma forms a long and sharp ridge, running approximately from north to south. Its elevation above Casas Grandes I estimate at two to three thousand feet;

its slopes are bare, quite steep, and in places even precipitous towards the west. Valleys and gulches run down to the eastward, and in these valleys and near the base are some very well preserved specimens of dikes or dams, similar to those in the vicinity of Huachinera and Baserac. Some are laid on only one side of an arroyo, others on both sides. The walls look as if they had been but recently made, so neat and well preserved do they appear. They are one meter (39 inches) high, and 1½ meters thick, and in their rear extends a level and fertile surface. What attracts still more attention is the old trail by which the mountain is usually ascended. This is properly not wider than one meter, although it appears double that width, having been considerably eroded. It is not, as people at Casas Grandes state, cut out of the rock or scooped out of the soil, but simply worn out by much ancient travel, and it seems as if all the loose rocks, drift, or boulders had been carefully removed so as to clear it. The depth of the track is from 0.30 to 0.45 m. (12 to 18 inches). In one place, where it winds along a steep slope, it appears to be 2½ meters (8 feet) wide, but only part of this width is artificial, and the remainder a natural ledge.

The trail leads to the lowest or northern portion of the crest, and there, on a terrace slightly sloping to the eastward, stand the mound and defensive wall represented on Plate I. by Figure 100, called by the people of Casas Grandes "El Publito." I append here detailed sketches of both mounds and wall. The former constitute a hollow square, and are like those at Casas Grandes, and in that valley in general, but smaller. The buildings could not have been higher than two stories originally, and protruding walls of adobe show a thickness of 0.55 m. (22 inches). Pottery as usual is handsomely painted. The wall is built about twelve meters to the east of it, on a slightly lower level, with a width of five feet; its original height it is impossible to determine. A passage with a step at its entrance formed by a large slab, 2½ feet wide, leads through this wall; a rudely semicircular enclosure terminates against it in the east. Inside of the enclosure stands a mound built of stones five feet high, and measuring 4½ by 3¾ meters (15 by 12 feet). What this enclosure and mound were intended for I cannot well imagine, unless as a lookout placed in front of the main wall; but it protects only one side of the gateway. The total length of the wall is 77 meters (253 feet), and the work on it is well executed. Flags or slabs of stone set upright along the base of the wall support blocks carefully broken, which constitute a good facing, one on each side, and between the two facings smaller stones are filled in to constitute the body of the structure. The binding material is adobe. The little mound appears to be of solid stone-work, also well executed. All these structures suggest the idea of defences. Still we may inquire why the wall extends only across a portion of the width of the terrace. It could be turned both on the north and the south, and, besides, the crest rising to the south affords an enemy



Pueblito on the Cerro de Montezuma.

every opportunity of assailing the wall from above or the rear. All around is perfectly bare, and no foe could approach, unless at night, without being exposed to detection. West of the house, along the brink of a precipice, rude defensive structures, analogous to those of the "cerros de trincheras" of Sonora, are erected on ledges and in crags. These are low parapets, and circular and square enclosures of small dimensions, but all nearly on the same level, and not concentric, as those at Batonapa; but their rudeness is in strong contrast with the fine finish of the eastern line of defence. Besides these, circles and polygons of stones clumsily piled are irregularly scattered over the terrace. It seems certain that these structures are not of the same age as the mounds, and the well built eastern wall of defence.

A trail similar to the one by which the Pueblito is reached leads up the ridge to the south, and finally to the summit of the Cerro. Another trail leads on to the terrace of the Pueblito from the north, and still another climbs up from the west through crags and crevices. It is easy to see that these trails are all ancient.

Following the first of the three trails, the highest point of the mountain is reached. Thence the slopes are steep to the east and west sides, more gradual to the south and north. Like all the slopes of the Cerro, it is partly rocky, partly covered with small bunches of grass, with cactuses growing between the tufts. At the Pueblito Opuntiæ grow in clusters to a large size; higher up everything is low and stunted, and nothing obstructs the wide view. In the north it embraces the country as far as the Sierra Florida in the vicinity of Deming, New Mexico; in the south it is not so extensive, as the Sierra del Ancon and the Sierra del Cristo close the view intervening between the Casas Grandes valley and Galeana in that direction; in the west the levels at the foot of the

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Sierra Madre, and the different branches of that chain as far as Namiquipa, appear with remarkable clearness; and in the east we look over the ranges beyond the Casas Grandes River and far into white and arid plains.

On the highest point stands the ruin of a circular tower, built of plates of stone laid in adobe mud, five feet in thickness, and with walls in places still eight feet high. I noticed no entrance or door, so that it looks as if the walls had to be scaled in order to get inside. There is indeed a heap of stone rubbish lying outside, which led me to suspect that a flight of steeps built outside might have afforded the means of entrance. This feature is found in the many-storied watch-towers near Zuñi, some of which are in use to-day. Inside of the tower are partition walls from two to three and a half feet thick; there is also a niche. The central partitions may have been of adobe. At a distance of ten meters, and seven feet lower than the outer circumference of this tower, a wall of stone encompasses it which is now not over four feet high, and in most places two feet thick. The stones appear to have been piled up loosely without binding between them, and nowhere did I notice a gateway or entrance.

I could not find any pottery around this ruin, and the absence of such objects confirmed me in the supposition that this tower was a post of observation. I copy what I wrote in my Journal of May 30, 1884, on the day I explored the ruins on the Cerro de Montezuma: "The position of the Cerro is a very remarkable one. Isolated, and dividing the valley of Casas Grandes in the east from the valley of San Diego and the Piedras Verdes in the west, it absolutely dominates both, and the whole plain at the foot of the Sierra Madre from its farthest southern termination to the Pajarito. Every flank, fold, pass, or crest of the Sierra Madre on its eastern face is seen. To the east every plain, valley, range, and pass from the Boquilla to beyond Corralitos, and in the far north the Sierra de la Hacha, and even the Florida, are dimly visible. The view is immense, and access to the tower, except from north and south, very steep and difficult." It is not to be wondered at, therefore, if it has been regarded as only a post of observation, never inhabited, but temporarily occupied by videttes looking out for the safety of permanent settlements situated below.[1]

Neither at the tower, nor at the Pueblito, did I see any traces of permanent water.

While the probabilities are quite strong that the tower was a military construction, it is not to be overlooked that it may have been a place of worship. The two are often combined in Indian life, and the trails that converge on the top of the Cerro de Montezuma become an interesting feature, indicating that there was much travel up and down the mountain.

The trails leading over the crest of the Cerro are the most direct route from Casas Grandes to the ruins on the Piedras Verdes. This seems to point to the fact that the villages or groups of houses on the Piedras Verdes and Palanganas were in close communication with the villages on the Casas Grandes River, and that some of the settlements on both sides of the Cerro were coeval. The trail leading from the central watchtower to the south, as well as that rising to it from the north, indicate that the tower was visited from the Casas Grandes and Piedras Verdes, as well as from the Palanganas or from the settlement near the Boquilla. It is not unlikely that the villages along the three streams formed, if not one great cluster politically united through a common government, perhaps a confederacy or league.

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[1] Garcia Conde, *Ensayo Estadístico*, p. 74. "Á distancia como de dos leguas al S. W. está un divisadero ó atalaya en un picacho que domina un terreno extenso por todos rumbos, con el objeto quizá de descubrir la aproximacion del enemigo. En el declive meridional del mismo picacho hay inumerables lineas de piedras colocadas á propósito, pero á distancias irregulares en cuyos extremos se ven montones de piedras sueltas." These parapets, which from the description of the statistician of Chihuahua indicate something similar to the "cerros de trincheros" of Sonora, I have not seen. Mr. Bartlett also alludes to the tower on the top of the Cerro in his *Personal Narrative*, vol. ii. p. 362. He did not visit it himself, but says, "This fortress can be discerned with the naked eye, and on looking at it through my spy-glass it showed quite distinctly."

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The ancient culture which flourished at Casas Grandes and in its neighborhood was similar to that which existed on the banks of the Gila and Salado in Arizona; the architecture especially is of the same type. But at Casas Grandes there was a marked advance over any other portion of the Southwest so far visited by me, shown particularly in certain household utensils, in the possible existence of stairways in the interior of houses, and in the method of construction of irrigating ditches. Nevertheless the strides made were not important enough to raise the people to the level of more southern tribes. Their plastic art, as far as displayed in the few idols and fetiches, remains behind that of the Nahuatl, Tzapoticas, Mayas, etc. They seem to have reached an intermediate stage between them and the Pueblos, though nearer to the latter than to the former.

That a sedentary tribe, if permitted to reside for any length of time in a country like that of Casas Grandes, should achieve some progress in art and industry is natural, for the resources which this country presents are great enough to favor progress in art and in industry, and the climate is not tropical enough to exhaust and dampen energy. In this respect it was more favorable than the Tempe delta.

It is not improbable that the Casas Grandes region — in which I include the valleys of Corralitos, Janos, Ascension, and the stretch as far as the Boquilla and the Piedras Verdes and Palanganas Rivers — at one time contained a population more dense than that of any other part of the Southwest inhabited by sedentary aborigines. Of their numbers it is impossible to form an estimate, as we do not know which and how many of the villages were contemporaneously occupied. That all of them were inhabited at the same time can hardly be supposed, as that would be unusual for Indian communities and customs, and furthermore the degree of decay is quite different in the various ruins in the same vicinity. For the largest settlement, which is the one now in ruins at Casas Grandes, three to four thousand souls would be, according to my impression, a reasonable estimate.

Part of the ruins at Casas Grandes is beyond all doubt the best preserved ancient specimen in that district, while at the same time it is by far the largest cluster. It may be that Casas Grandes was last abandoned, or the better preservation may be due to its extent and the size of its houses. The usual supposition is that Casas Grandes was the "capital" of a certain range or district, and that the smaller ruins are those of minor villages, just as Tenochtitlan formed the main seat of the Mexican tribe, while Ixtapalapan, Mixquic, Huitzilopochco, and Tepeyacac constituted outlying settlements. But I doubt whether there was any governmental tie uniting the villages on the Rio de Casas Grandes between the Boquilla and Corralitos with those near Janos or those near Ascension, even if all these groups were contemporaneously occupied. It is inconsistent with the nature of Indian institutions that clusters geographically separated should be politically connected. It is more likely that such a connection may have existed between the villages on the Piedras Verdes and Casas Grandes, and the different constructions on the Cerro de Montezuma seem so to indicate. It is my impression that several tribes, probably of one and the same stock, occupied the country in separate and autonomous groups, and that Casas Grandes is probably the last refuge of one of these tribes.

What that tribe was, what language they spoke, what were the causes that produced their downfall, and what has become of them, are all questions which I do not presume to answer; but it is well to present here whatever scanty information touching the past of Casas Grandes has been preserved to us, either in Indian folk-lore or in Spanish documents.

There is still a possibility of finding some clue to the questions enumerated above in the traditions of Sonoran tribes, or in those of the Tarahumares and Tepehuanes. What leads me to this supposition is, that while I was in Eastern Sonora several Opata Indians assured me that Casas Grandes was built by the Opatas in former times. Upon what facts this tale was based I could not learn. Certain it is, however, that the architecture of the ruins is strangely like that on the Gila, and since the ancient buildings there are claimed by the Northern Pimas as those of their ancestors, and we know that the Southern Pimas, or Nebomes, still occupied similar edifices in Sonora in the middle of the seventeenth century, some color is given to the surmise that the builders of Casas Grandes may have been of the same stock as the Pimas, Opatas, Yaquis, and kindred groups. I was also informed that the original name of Casas Grandes was Hue-hue-ri-ki-ta in Opata, but I place no great stress on this. The word appears to me as one manufactured for the occasion, since it is a literal translation of "great houses." I have already related that, according to local Opata traditions, the people at Casas Grandes before the Spanish occupation warred against the Opatas near Huachinera; but that tradition fails to state whether the aforesaid people then occupied the villages now in ruins, or whether they were the Sumas who were found in possession of the valley when it was first discovered.[1]

I have already stated that, when the Spaniards entered Central Sonora, they heard of a tribe called Sunas, which was either living in or roving through the eastern portions of Sonora, or what to-day is the State of Chihuahua. The district of Casas Grandes was first visited by a missionary, as far as I am able to ascertain, in 1660, or thereabouts. Fray Andres Perez, a Franciscan, made the first attempts of Christianization there among the Sumas, as the Indian inhabitants of the valley were called, and also Yumas.[2] He found the aborigines to be very docile. He was succeeded by Father Aparicio, who soon died.[3] In the early reports concerning these efforts, the Great Houses are mentioned as already in ruins, and the inevitable Montezuma tradition was at once attached to them,[1] which indicates that the Sumas themselves had probably no recollection of the past history of the place, and were therefore not the builders and inhabitants of the ancient buildings.

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[1] Alegre (*Historia de la Compañia de Jesús*, vol. ii. p. 404) states that the Sumas already in 1649 molested Sonora; but it is not clear whether these Sumas were those of Casas Grandes, or a branch of them living in the vicinity of Fronteras and on the Upper Yaqui.

[2] According to Alegre (*ut supra*), Father Marcos del Rio, a Jesuit priest and missionary at Huassavas in Sonora, made the first successful effort to convert the Sumas: "Consiguió la dulzura y el celo del Padre Marcos del Rio, ministro de los Guasabas que por marzo de 1651 se dejó ver la primera vez en sus tierras á convidarlos con la paz de parte del Gobernador, y con luz del Evangelio. Para prueba de la sinceridad de sus proposiciones, llevó el Padre un sello del gobernador. Ellos lo creyéron, y luego viniéron á Oppotu, pueblo de los Guasabas, mas de cien caciques con sus hijos y mugeres en señal de confianza." The fact that they came to Opoto indicates that these Sumas did not live at Casas Grandes, but in the territory of Sonora, probably near Fronteras. In regard to Fray Pedro de Aparicio I refer to the documents following. Francisco de Gorraez Beaumont, *Informe*, p. 235. According to Fray Antonio Valdés, *Patente*, p. 245, Don Francisco de Gorraez Beaumont, when he was Governor of New Biscay, sent Fray Andrés Pérez to Casas Grandes: "Avisándole de todo lo necesario para el efecto mencionado, el cual se ha ejercitado mas de dos años en catequizar, bautizar y casar mucha cantidad de Indios, por mar poblacion, reducirlos á doctrina y obediencia real, prometiendonos muchos frutos y muy grandes adelantos en la continuncion y cuidado que se debe ir asegurando en aquellas nuevas plantas que se han reducido al verdadero conocimiento; y para este efecto ha estado sustentando dicho Señor maese de campo al religioso con su hacienda, dandole la misma cantidad que S. M. (que Dios guarde) da á los ministr[illegible]sta provincia que son mas de trescientos pesos sin el maiz con qve los soco[illegible] cada año, y lo va continuando despues que acabó el oficio de gober-

I refer to the first part of this report for whatever scanty notices I have been able to collect touching the condition and degree of culture of the Sumas.[2] It is noteworthy that, while the Indian inhabitants of the Casas Grandes valley are described as of a mild disposition and given to the pursuit of agriculture, the Sumas around El Paso were always turbulent nomads, who gave the Spanish authorities a great deal of trouble. With the appearance of the Apaches in Chihuahua, the tribes of Casas Grandes, Janos, and Carretas broke out also. In 1684 a secret council was held near Casas Grandes, which was attended by the Sumas, Janos, Jocomes, and other tribes from Southwestern and Southern Chihuahua.[3] The

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nador; pues á los dos religiosos que fueron áhora, el uno nombrado Fray Pedro de Aparicio y el otro Fray Nicolas de Hidalgo, lós había con la misma cantidad que dió al primero." Andrés Lopez de Gracia, *Carta al Gobernador Don Antonie Oca Sarmiento*, August 16, 1667, p. 342: "Si bien echando mucho menos á nuestro reverendo Padre Fray Pedro de Aparicio, de que dí cuenta á V. S. de su muerte; y áhora la doy de nuevo por el grande sentimiento que los Indios han hecho chicos y grandes." It seems that the church had already been commenced in 1667: "La obra del templo y su convento crecía"; but it was abandoned for a short time after the death of Father Aparicio: "Despues de su fallecimiento algunos de los Indios se han ausentado, parado la obra." The death of Father Aparicio must therefore have taken place at Casas Grandes, and about 1667.

[1] Francisco de Gorraez Beaumont, *Informe*, p. 234: "Por haber traido noticia que en este pueblo de las Casas Grandes era panino de minería y segun tradicion antigua y ruinas que se veian que decían ser del tiempo de Montezuma."

[2] Part I., page 89.

[3] Alegre, *Historia*, vol. III. p. 53: "Determinaron tener una junta general cerca de un grande edificio ó ruinas antiguas que hasta hoy llaman Casas Grandes, de qué hemos hablado en otra parte. Allí se había de determinar de común acuerdo el modo, lugar y tiempo de hacer la guerra, y se citaba para fines del mes de octubre con motivo de hacer las primeras hostilidades á la entrada del invierno."

outcome of their deliberations was open revolt, which, while locally suppressed, still placed the Spanish colonists in a critical position. In consequence of it, the settlements of the Spaniards in the vicinity of Casas Grandes were abandoned for some time. In 1727 there existed at Casas Grandes only half a dozen families of Sumas and Conchos Indians, and a single Spanish hacienda. In 1748 even that hacienda was in ruins.

Thus we cannot gather from documents of Spanish origin, as far as known to me, anything in relation to the past of Casas Grandes in prehistoric times. That the Montezuma tale should at an early date have been attached to the ruins is natural, as it was to the Casa Grande of Arizona. It was declared to be one of the "stations" which the Central Mexican tribes made during their suppposed wanderings from north to south. Even the number of souls (600,000) is given in 1727.[1]

I regret to leave Casas Grandes and its interesting ancient monuments without being able to say more about them.

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[1] Rivera. *Diario y Derrotero*, p. 48: "Al dia diez y siete, al rumbo de el Sueste, pasando luego que comenzé á marchar, por las ruynas de vn palacio que fabricó el Emperador Montezuma, quando desde las partes de el Norueste de la Nueva México, como trescientas leguas y de vn parage q̃ se nõbra el Teguayo, salió con seiscientas mil personas á poblar la ciudad de México: procurando en aquel sitio tan ameno fertil, dar descanso á la multitud grande de Yndios que conducía; Conocebe en lo soberuio de los edificios, y en su magnitud, ser fábrica suya pues siendo su figura un paralelo grande. Tiene cada lado doscientas y cinquenta toyses de Paris. Conservandose hasta oy algunas maderas, que permanecen en los altos de el tal palacio, que avn haviendo pasado mas de tres siglos, se reconoce algo, de lo magnifico de su fábrica." Still more grotesque is the description of the adobe of Casas Grandes given by Mota-Padilla, in *Historia de la Nueva Galicia*, p. 357: "Por vnos edificios de piedra bien labrados, de que tienen tradicion haber sido fábrica de los primeros Mexicanos, cuando salieron de entre el Norte y Poniente con su primer emperador Moctezuma á poblar la Nueva España; y no hay dusa que admira el primor del ajuste y labrado de las piedras, y se discurre que la union de estas sería con el sumo de algunas yerbas."

They belong to the class of ruins which are beyond the reach of historical knowledge; but I have no doubt that, when the folk-lore of tribes living to-day at a distance from the place becomes thoroughly known, much will be revealed that may to some extent remove the veil of mystery now shrouding their past. I also venture to suggest, that at the earliest possible date the ruins of Casas Grandes be thoroughly investigated, since excavations, if systematically conducted, cannot fail to produce valuable results.

Between Casas Grandes and the line of the Mexican Central Railroad extends a stretch of arid country which is unknown to me; and not less arid is the expanse between the range known as the Corral de Piedras and El Paso del Norte. Around the latter place I have heard of ruins, but was unable to see any. In the mountains east of the pass, on the Texan side, caves have been discovered which showed traces of former habitation. Among other things sandals of yucca were found of nearly all sizes, from that of the foot of a child to that of a full-grown man. I also heard of pottery and of stone implements having been found in these caverns; they are natural, not artificial, but I could not ascertain whether they had been partitioned. It is known that in the sixteenth century only roving tribes occupied the region of El Paso del Norte, and that the first permanent establishment there within historic times is due to the efforts of the Franciscans. Fray Garcia de San Francisco (or de Zuñiga) settled the Mansos in that vicinity in 1659. Previously they had roamed up and down the lower course of the Rio Grande in New Mexico, having their headquarters mostly in the vicinity of Doña Ana and Fort Selden.[1]

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[1] Part I., pp. 165, 166. I briefly refer to the main documents quoted: *Auto de Fundacion de la Mision de Nuestra Señora de Guadalupe del Paso del Rio del Norte* (1659, MS.); Benavides, *Memorial*, p. 9; and Rivera, *Diario y Derrotero*, p. 26.

South of El Paso del Norte, at the hacienda of San José, casual diggings have brought to light some antiquities, among which were metates and a fetich of stone. The remainder of Chihuahua is unknown to me as I have only traversed it by rail; but I cannot refrain from alluding here to the statement of Villagran, that while Juan de Oñate was marching with his soldiers and colonists through Central Chihuahua in 1598, they noticed in the deserted regions quantities of potsherds "good and bad, sometimes gathered in heaps."[1]

As I have made no explorations farther to the south than the vicinity of Casas Grandes and Oposura in Sonora, this chapter terminates the descriptive portion of the second part of my final report to the Institute.

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[1] *Historia de la Nueva México*, canto ii. fol. 11:

> "Assi la cuidadosa soldadesca,
> Á mas andar sacaba y descubria
> Desde los anchos límites que digo,
> Patentes rastros, huellas, y señales
> Desta verdad que vamos inquiriendo,
> Á causa de que en todo el despoblado.
> Siempre fuimos hallando sin buscarla,
> Mucha suma de loça, mala y buena.
> Á vezes en montones recogida."

XV.

CONCLUSION.

AT the present stage of my knowledge regarding the vestiges of the past of the aborigines of the Southwest, as well as of their present condition, I do not venture to enter into any theoretical discussions or speculations. The investigator who dwells far from the centres of scientific knowledge must be content with presenting his mite of modest research with as little comment as possible. A conclusion to this long report can therefore be only a short *résumé* of what has preceded.

Glancing at the contents of the fourteen chapters devoted to archæological description, we cannot fail to notice that the vestiges of sedentary aboriginal life are scattered over a large proportion of the area embraced in what is commonly termed the Southwest of the United States. With the exception of the great plains and vast arid plateaux, wherever permanent water could be secured we find traces of tribes accustomed to sedentary life and familiar with its characteristic arts. In many regions these evidences are slight, and show that the occupation has not been of long duration, or that it has not produced any high culture; in some localities civilization attained a development superior in degree as well as in form. Such differences, however, are only varieties of one general type. The ancient culture represented in the ruins of the Southwest appears therefore to have been nearly uniform in every section.

Although the communal pueblo houses of the north seem to be different from the structures on the Gila and at Casas Grandes, they still show the same leading characteristics of being intended for abodes and at the same time for defence. In the northern villages, however, both features are intimately connected, whereas farther south the military purpose is represented by a separate edifice, the central house or stronghold, of which Casa Grande is a good specimen. In this the ancient village of the Southwest approaches the ancient settlements of Yucatan and of Central Mexico, which consisted of at least three different kinds of edifices, each distinct from the others in the purposes to which it was destined.[1] It seems, therefore, that between the thirty-fourth and the twenty-ninth parallels of latitude the aboriginal architecture of the Southwest had begun to change in a manner that brought some of its elements that were of northern origin into disuse, and substituted others derived from southern influences; in other words, that there was a gradual transformation going on in ancient aboriginal architecture in the direction from north to south.

I have alluded only to the most striking examples of Southwestern aboriginal architecture, the large houses. In regard to another kind, the small detached buildings, it must be observed that the small house is probably the germ from which the larger structures were evolved, and that the small houses also undergo modifications, especially from north to south, in the size of the rooms. I repeat here what I said in my preliminary report to the Institute of August 11th, 1883: "There is a gradual increase in the size of the rooms in detached buildings in a direction from north to south, which increase is most distinctly marked over the area where the detached house alone prevails."[1]

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[1] The Calli, or dwelling; Tecplan-calli, or official house; and Teo-calli, or house of worship. These terms are from the Nahuatl of Mexico. There were other buildings temporarily devoted to special purposes, but these three were the leading forms.

There are regions, like Central Sonora, where the small house is the only architectural type now remaining from ancient times. It will be noticed that the square or rectangular dwellings of the Opatas of the Sonora River confirm the impressions above recorded. If we compare them with the dimensions of the huts now inhabited by tribes living still farther south, we find their size increase as we advance from a colder climate to a warmer one.[2]

Large halls are not found in the ruins of the north. They appear to be almost the rule at Mitla and in Yucatan; and they are met with on the Gila, under a climate which is semi-tropical.

Equally noteworthy is the increase in dimensions of the doorways and windows. In the lofty structures of Arizona and Chihuahua there is considerable resemblance to the doorways of ancient edifices in Yucatan and other southern States of Mexico.

The outer coating of the walls is of course different in the arid northern countries from that in the moist regions of the tropics. Elsewhere I have mentioned the plating, with polished slabs, of the walls of Mitla, which was applied, I suspect, not merely for ornamental purposes, but with a practical object.[3] Where summer rains are as violent as under the tropics, a coating of adobe or gypsum would be unable to resist them for any length of time.[4] In the Southwest a thinner coat was sufficient; still there is improvement in such coating, from the northern sections to the southern, shown by the finish of the wash applied to the surface.

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[1] *Fifth Annual Report*, p. 62.

[2] Compare notices of the houses of the central plateau of Mexico, of the coast of Vera Cruz, and of the State of Oaxaca, in my *Archæological Tour*, pp. 20, 124, 128, and 265.

[3] Ibid., pp. 293, 304.

[4] Juan Bautista Pomar, *Relacion de Texcoco* (1582, MS.), says of the buildings of ancient Tezcuco: "La forma y edificio de sus casas son bajas, sin sobrado nincuno, unas de piedra y cal, y otras de piedra y barro simple, las mas de adobes

I have alluded to the appearance of artificial mounds and artificial platforms or terraces on the Gila, and perhaps also in the Casas Grandes region. It is well known that both of these structures are conspicuous in the ruins of Southern and Central Mexico. The estufa, however, is a specifically northern feature, and therefore disappears as soon as the climate becomes more equable and finally tropical. But if we consider one of the objects for which the estufa was used, we find it represented in the south also. It is proved that the estufa was not so much a structure for religious purposes as it was the regular abode of the males, including the boys after they had attained a certain age. In this respect it finds its counterpart in the Telpuch-calli, or "House of the Youth," of the ancient Mexicans.[1]

Military constructions do not seem to play, in the Southwest, the conspicuous part which they assume farther south. In the New Mexican pueblo the defensive element is combined with that of shelter, and only in rare instances is there a defensive wall added to the already strong edifices. Watch-towers are additions, wherever the site is favorable, or wherever they were looked upon as necessary. Places of refuge

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de ꝗe mas usan en esta ciudad, por ser muy buenos porque los hallamos hoy dia á edificios viejos hechos de mas de doscientos años á esta parte, tan enteros y sanos que largamente pueden servir en edificios nueuos." Adobe houses were certainly plastered outside, as is intimated by the same authority further on, although not positively. I also found adobe houses at Mitla decorated inside with "a thin layer of white plaster." *Archæological Tour*, p. 292. Judging from the white composition which I found at Cholula in the great mound, that plaster was made of unburnt lime, and therefore of much greater durability than the gypsum whitewash, or the yellow clay, daubed over ancient buildings in the Southwest.

[1] For the Telpuch-calli, see my *Social Organisation and Mode of Government of the Ancient Mexicans* (Twelfth Annual Report of Peabody Museum, p. 557).

seem to be peculiar to the Southwest. Southern Arizona, Sonora, and Chihuahua contain, so far as I know, the greatest number of them. The pueblos on the Salado and Lower Gila had circumvallations, but the resemblance of such adobe enclosures to the stone enclosures connected with other ancient buildings in the same districts seems to suggest that they had more to do with cultivation than with the safety of the inhabitants, for which reliance was had upon the central house of each village rather than upon the wall surrounding it.

Cliff-houses and cave dwellings are, as I have repeatedly stated, expedients resorted to out of necessity and favored by natural features, but cannot be considered as a separate type. They occur south as well as north, and are an ethnological feature based upon geological opportunities. Although there is considerable difference in appearance between the ancient architecture of the Southwest and that of Southern Mexico and Central America, there is in reality only a gradual transition, brought about principally by physical causes. Life under the tropics, wherever nature is not too exuberant, is conducive to permanence of abode in a higher degree than in a colder climate, and with permanence only can advances in a certain direction be made. But the nomad is by no means less intelligent than the village Indian, and in many respects he is even his superior; for, as I have observed in the first part of this report, the difference between the two may be compared to that between a man who has travelled extensively and one who has spent his lifetime inside a village community. The example of the Navajos proves that when the nomad once gives up his objections to steadiness of abode, he becomes a more successful and more enterprising villager than the sedentary native who has remained *in statu quo* for centuries past. In all speculations upon the origin of certain clusters in Central Mexico, found living in a state of considerable advance in architecture and other arts, we are not authorized to conclude *a priori* that they had been sedentary Indians from time immemorial. The Southwest presents cases well authenticated of wild tribes becoming villagers, and of villagers turning to a wandering life. I allude to the Navajos and to the Mansos as an example of the former, and to the Pápagos of Arizona as an example of the latter. We also know of tribes one part of which was living in villages, while the remainder led a roving life. Such were the Jumanos of Chihuahua, in comparison with their kindred in New Mexico, and the Sumas of Casas Grandes, as compared with the Sumas at El Paso del Norte. If Central Mexican folk-lore speaks of wild tribes having become sedentary, and having achieved greater success than their precursors, we need not discard such tales as improbable.

Moreover, the abodes of nomads indicate sometimes greater mechanical skill on the part of their builders than do those of the village Indians. Thus the Comanche tent is by no means a contemptible achievement. It is improper also to extol the stone house at the expense of the house of wood. The long house of the Iroquois was a very intricate structure, and the same may be said of the houses of Alaskan tribes. We should bear in mind that it is much more difficult to frame than it is to pile, and that most of the stone or adobe work in North America is only careful piling.

In artificial objects there is also progress from the north to the southward, but not so steadily marked; uniformity is the rule, and progress is local rather than general. An instance is the beautiful pottery found at the ruin near San Matéo in Western New Mexico, at a place surrounded by ruins covered with potsherds inferior in quality as well as in decoration. In comparison with more southern specimens, even the finest vessels of Casas Grandes appear inferior; there is a certain tendency towards shapes and decorations of the tropics, but they are far from being as elaborate. I have no need of treating in detail of the articles in stone and bone, and of textile fabrics. Artificial objects depend largely upon the natural resources in the immediate surrounding, and hence they vary in degrees of perfection from locality to locality. But I must insist upon one prominent feature, the decorations of the pottery all over the Southwest bear a marked resemblance. The symbols are the same on the San Juan River in Northwestern New Mexico as in the Sierra Madre and at Casas Grandes, with the single exception, which I have purposely not mentioned before, that at Casas Grandes two new figures appear. One is the heart, and the other resembles the symbol of a flag, as it is sometimes found in ancient Mexican pictographs. The heart is also found on New Mexican pueblo pottery, but always as the heart of some animal, the body of which is painted on the bowl or jar. Zuñi vessels abound in representations of this kind. At Casas Grandes the heart stands by itself, accompanied by the well known conventional signs for clouds, water, lightning, the whirlwind, etc. On the same vessel on which I noticed the heart I also noticed the flag, and I saw both figures only on one jar at Casas Grandes, although I had noticed the heart on a potsherd from the vicinity of Huachinera in Sonora. It may be conjectured that, with the advance made by the old inhabitants of Casas Grandes, they had also invented new symbols.

Plastic pottery displays greater improvement in southern ruins than the painted ware; still it is not without reserve that I make this statement, as at San Matéo I saw evidences of great skill and taste in indented ware. I saw painted ware with handles representing animal heads that fairly compared with anything from Chihuahua. What is most noteworthy is the fact that at Casas Grandes human figures executed in alto-rilievo were found on vessels. Of such a stride as this I have no knowledge either in New Mexico or in Arizona, although the canteen from the Estanque Verde, near Tucson, clearly represented a duck. But in that case the whole vessel had the form of the animal, while at Casas Grandes the plastic decoration is independent of the general shape.

Articles of personal decoration seem to have been the same all over the Southwest, and made of nearly the same material; if any metal at all has been found it has been only a very few specimens of copper. Neither bronze nor silver, still less iron or gold, in a worked or crude state, has been found. At Casas Grandes I heard of copper rattles, and of a turtle made of hammered copper; although I believe in the authenticity of the rattles, I have doubts about the accuracy of the report concerning the turtle.

The fetich of the American panther, or puma, found at Casas Grandes, is quite interesting, as showing that this important prey-fetich, which plays such a prominent part in Pueblo mythology, was also recognized in Northwestern Chihuahua; and it was represented with the same characteristics (the long tail curved back) as among the Pueblos.

The only large figures found are the mountain lions, or panthers, discovered by me on the mesas north of Cochiti in New Mexico. It is also noteworthy that buildings used exclusively for places of worship have not been discovered.

In alluding to an apparent transition in architecture from north to south, I by no means desire to convey the idea that such a transition must necessarily imply a common origin of the tribes that inhabited the different regions in former times. The greater part of the Southwest and of Mexico presents the same character of aridity, and the tropical region there is less extensive than the arid area. Architecture therefore has either taken a higher flight in decorative art, or it has shrunk to modest dwellings constructed of perishable material. Still, the fundamental plan of the most elaborate buildings recalls the simpler types of northern edifices.[1]

Modern science recognizes language as the surest ethnographic criterion. It is admitted that when two tribes geographically separated speak the same tongue, or dialects of it, they must have sprung from the same original stock. While this is true in the main, it may still be subject to contingencies. In the first place, language is not immutable; it changes in some cases even more rapidly than customs. Contact between tribes speaking distinct idioms brings about the gradual formation of a new one containing the elements of both, but sometimes so disguised that it may be difficult to trace the original components. Thus a new language is forming to-day among the Maricopa Indians, who, mingling and intermarrying with their neighbors the Pimas, teach their children words and phrases from both idioms. The result, if the tribe survives, will be the formation of a new mode of speech. Again, the overpowering of one tribe by another may bring about the gradual extinction of the language of the vanquished, and the substitution of that of the conqueror, but modified by the former. Such changes require many centuries, and we have not had the aborigines under our observation long enough yet to see one idiom completely displacing another, except where European languages have superseded those of the Indians. But prehistoric times were subject to no such limitations, and the possibility is not to be disregarded that clusters who were found speaking a certain idiom in the sixteenth century may originally have belonged to a different stock. While, therefore, language is certainly the safest guide in the search for original relationships, it is well to bear in mind the above contingencies, and their possible results.

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[1] I refer to the works of Lewis H. Morgan on this subject. See *Houses and House Life of the American Aborigines*. Also Juan Bautista Pomar, *Relacion de Texcoco*, MS.

Myths and traditions sometimes afford means of tracing relationships, but they are not infallible guides; a folk-tale travels as well as an object of art or of industry. The Zuñi Indians have a story called the Red Feather, bearing considerable resemblance to the Greek myth of Orpheus and Eurydice. The natives of Durango in Mexico had a similar tale,[1] but I should be loath to admit that this indicates an original connection between the Tepehuanes and the Zuñis. It may as well have originated in both places independently, as it certainly did in Greece and in Zuñi. The tale of twin heroes, children of the Sun-Father, who in mythical times freed the earth from monsters hostile to mankind, is widespread over the Southwest.[1] We find it also in Guatemala, in the tales about Hunahpu and Xbalanque.[2] I have already spoken of the tale, preserved by the Opatas, of the manner in which the sun and moon were created at Baguigopa on the Upper Yaqui, and of its striking analogy with some of the creation myths of the Nahuatl of Central Mexico. In this case the resemblance is more significant, as both the Opatas and the Nahuatl belong to the same linguistic stock. Among the Pueblos the last resting place of the soul is at the bottom of a lake; a similar belief existed among the Opatas;[3] and the Nahuatl had their souls cross a river before they entered upon their final abodes.[4] These are not the only instances of resemblance between the folk-lore of the Southwest and the South that might be quoted.

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[1] *Apostólicos Afanes de la Compañía de Jesús*, lib. i., cap. iii. pp 23 and 24: "Vivía este en el rio de Santiago casado, y dexando cierto dia á su muger buena y jana se fué á buscar sal á la costa de tierra caliente, y de buelta ya, la encontró en el camino: Y aunque la requirió adonde ivapni le habló palabra, ni se detuvo; Siguióla el marido, dexando sobre una peña el tercio de sal, que trahia cargado, y vió que se entrava en *Mucchita*. De que adivinando lo que havia sucedido, empezó á llorar su viudéz; Acertaron á passar por allí los custodios de aquel infierno; Les contó sus desconsuelos, compadecidos aquellos personases de sus lágrimas, le dieron unas varillas, diziendole, que á la noche, quando saliera á bailar, la flechára con una de ellas, y que si acertaya á herirla, lograría, que ella le conociese, y bolveria á su casa. Pero que advirtierra, que havia de llevarla con especial cuidado, hasta llegar á su tierra, donde havia de tratarla blandamente, sin gretarla, ó reñirla, hasta que con el tiempo cobrára fuerza aquella alma; porque al eco solo de vna voz alta moriría eternamente, y no podría ya ni él, ni otro sacar de aquel lugar alma alguna. Cogió el Indio las varillas, y luego que vió á su muger bailando acertó á flecharla en una pantorrilla, con que ya conoció al marido; llevóla este con el cuidado, que sè le havia advertido. Llegado á su casa, supo como havía muerto el mismo dia, que la encontró. Para festejar el regozijo de su resurreccion convidó á todos sus parientes; y como el paradero de todos los convites era la embriaguez, abrió las botijas, para que bebieran todos. Por ser él que estaba mas alegre, rapetía mas los brindís, de que se resultó lo que otras vezes; y el prorrumpir en aquellas furias, á que provoca el vino, dando tales gritos que llegaron á oidos de aquella tierna alma; quien solo de este achaque murió segunda vez, y se fué á *Mucchita*, donde yace eternamente sepultada." The Zuñi tale of the "Red Feather" is quite similar, according to what Mr. Cushing told me. The guardians of *Cothluellonne* (the lagune at the bottom of which the souls pass the time in constant enjoyment, and especially in dancing) furnished the disconsolate husband the means wherewith to recover his spouse. They visited him at night, in a cave near Cothluellonne whither

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he had retired, and spoke to him under the disguise of white owls. The manner in which he lost his wife after her resurrection is somewhat differently told.

[1] Compare Part I., pp. 289, 308, and my *Contributions to the History of the Southwestern Portion of the United States*, p. 22.

[2] *Popol Vuh*, part i., chap. v. to xiv. inclusive.

[3] *Estado de la Provincia de Sonora*, p. 628: "Sus viejos, que entre ellos tienen grande autoridad, les enseñan patrañas muy ridiculas. Diré una sola . . . estos les han persuadido (con algunos resábios de la fabulosa laguna Stigia) que en muriendo van sus almas á una espaciosa laguna, en cuyas orillas por la banda del Norte estaba sentado un hombrecillo muy pequeño, que llamaban *Butzu Uri*. Este, pues, las recibía, y colocándoles apiñadas por su multitud en una gran canoa, las remitia á la otra banda del Sur, á dar residencia á una reverenda vieja que se llamaba *Vatecom Hoatziqui*. En una por una las iba comiendo, y á las que hallaba pintadas con las rayas con que se afean las caras, las arrojaba á la laguna diciendo que no las comía porque tenian espinas, y las no pintadas pasaban á su vientre contentas de gozar de una inmundísimo bienaventuranza."

[4] Sahagun, *Historia General de las Cosas de Nueva España*, ed. 1829, vol. i., app. to lib. iii. cap. i. p. 263.

Of greater importance are dim traditions preserved by Southwestern tribes which point to their origin in a certain direction, and to shiftings of the tribes in ancient times. While the Pueblos declare that they came to the surface of this earth in Southern Colorado, and the Navajos claim that they first lived in a region not very remote from that pointed to by Pueblo mythology, they also speak of wanderings of tribes, of which they possess only a vague recollection, in the direction of the south. The belief seems to be general among them that the drift of the shiftings has been from more northerly regions to southerly climes. What importance must be placed upon this can only be determined by future investigations of folk-lore. Ribas asserts that all the tribes of Sonora and Sinaloa agreed in affirming that their ancestors originally issued from the north.[1] The same is reported from Chihuahua by Villagran and by Mota-Padilla.[2]

Linguistic evidence supports such traditions to a certain extent. The great Uto-Shoshonee stock of languages embraces a number of tribes, ranging from Alaska to Central Mexico and Nicaragua. It is shown that the Nahuatl, the Sonoran tribes (with exception of the Seris), the Indians of Jalisco and Durango, the natives of Western Chihuahua, the Arizonian Pimas, and the Moquis belong to the same linguistic branch as the Shoshonees, Yutes, Comanches, and many tribes of the Northern Pacific slope.[3] The Navajos, and their outlying branches of the Apaches, are of the same linguistic stem as the Tinneh of the extreme Northwest.

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[1] *Historia de los Trivmphos*, p. 20: "Y finalmente, en los informes que sobre esta materia hize, siempre hallé rastros de que todas estas naciones, que se van asentando de paz en nuevas reducciones, salieron de la parte del Norte."

[2] Villagran, *Historia de la Nueva México*, cantos 9 and 11. Mota-Padilla, *Historia de la Nueva Galicia*, chap. l. p. 21.

[3] Gatschet, *Classification*. Also Brinton, *The American Race*, p. 133.

The linguistic status of the New Mexican Pueblos is not yet definitely ascertained; as Dr. D. G. Brinton very justly remarks, "No relationship has been discovered between either of these and any tribe outside the territory."[1]

Thus the tales of slow wanderings, or rather shiftings, of Indian clusters from colder to warmer climes across the Southwest, become by no meams improbable; but such movements must not be imagined to have been on the same scale as the irruption of vast hordes, such as Europe witnessed in the early part of our era, and which early writers upon Spanish America have conceived to have occurred in Mexico in prehistoric times. I say this not in order to censure deserving men who centuries ago took pains to record the fading traditions of tribes then first becoming known to Europeans. At their time ethnology was not yet a science, and they wrote according to the prevailing state of knowledge, and according to the points afforded them for comparison. Hence arose misconceptions and honest exaggerations, which have become deeply engrafted upon ethnological thought, and have cast a veil over ethnological facts. The movements of tribes have been slow and disconnected; there has been, it seems, a general tendency to drift towards the tropics, but never in a continuous stream. Neither is it certain that the groups that were met with as occupants of Central Mexico, Yucatan, and Central America in the sixteenth century were originally homogeneous. Some, perhaps many, of them may have been conglomerates, made up from fragments of vanished tribes speaking different languages, which finally coagulated into a new idiom.

This is a picture of the prehistoric past of the Southwest, somewhat different from that which, modelled upon the ancient history of Europe, has often been presented. On a previous occasion I thus wrote to the Institute on the subject: "The picture which can be dimly traced of this past is a very modest and unpretending one. No great cataclysms of nature, no waves of destruction on a large scale, either natural or human, appear to have interrupted the slow and tedious development of the people before the Spaniards came. One portion rose while another fell; sedentary tribes disappeared or moved off, and wild tribes roamed over the ruins of their former abodes."[1]

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[1] *The American Race*, p. 116.

While the drift of shiftings of tribes has been generally from north to south, it is by no means certain that numerous deviations from that course have not occurred. It is even probable that retrograde movements took place. Hence, principally in Mexico, the conflicting statements about migrations and the quarter from which tribes reached the districts where they were found established. Furthermore, the narrower the continent becomes towards the south, the greater is the possibility of casual or intentional invasions from the outside, important for the ethnography of the interior. This is an element which could hardly have played any direct part in the Southwest, except along the coast of Sonora. There contact with peoples from outside of the American continent was possible, but no traces of such contact are known. But it must be remembered that very little, if anything, is known of the folk-lore of the Yaquis, Mayos, and Opatas. It seems certain, however, that even the New Mexican Pueblos, or some of them, had a notion of the existence of the sea before the coming of the Spaniards. This is easily accounted for by the commercial intercourse of the Zuñis with tribes of Northern Sonora and of the Lower Colorado River. From the side of the Mexican Gulf it was much more difficult to reach the interior populations, and yet marine shells whose home is the coast of that gulf were found in the ruins of Casas Grandes.

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[1] *Fifth Annual Report*, p. 85.

It should not be overlooked, also, that there are said to be traces of a slow movement across the plains to the eastward, and of remains left by tribes who appear to have settled at intervals along the banks of the few rivers that traverse the steppes of Eastern New Mexico. If the existence of these traces should be confirmed, the question of the connection of tribes in the Mississippi Valley with the Southwest in prehistoric times would acquire some importance.

Further than what I have intimated in these pages, I do not venture to go for the present. The time has not yet come when positive conclusions in regard to the ancient history of the Southwest can be formulated. In the course of the past ten years new methods of research have been developed in ethnology, as well as in archæology, and at some future day these may lead to the solution of questions which at present are perhaps not even clearly defined.

SANTA FÉ, NEW MEXICO,
April 20, 1891.